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Prospective Demand for Meat and Livestock in the South

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Marketing Research Report No. 99

Southern Cooperative Series Bulletin No. 43

U. S. DEPARTMENT OF AGRICULTURE
Agricultural Marketing Service
Washington, D. C.

In Cooperation with
State Agricultural
Experiment Stations
of the Southern
Region

PREFACE

This bulletin is a report on work conducted by the author in the Agricultural Marketing Service of the United States Department of Agriculture under the direction of the Livestock Marketing Technical Committee in the cooperating States.

Acknowledgment is due the following for their suggestions, guidance, and criticism during the preparation of this report: V. John Brensike, Edmund Farstad, Ellsworth DeMasters, Harold Breimyer, and Rex Daly, Agricultural Marketing Service; Stefan H. Robock and Vernon W. Ruttan, Tennessee Valley Authority; and Geoffrey Shepherd and Emil Jebe, Iowa State College.

Like others in the Southern Cooperative Series, Bulletin No. 43 becomes, in effect, a separate publication by each of the cooperating stations; but, since it is identical for all the stations, it is suggested that copies be requested from one source only.

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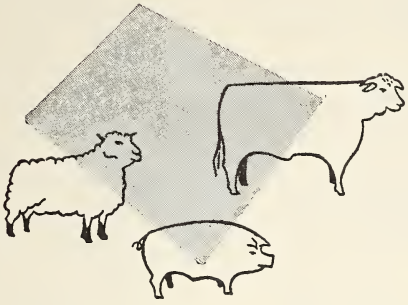

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in cooperation with . . .

Agricultural Experiment Stations of Alabama, Arkansas, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia

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FOREWORD

As a result of growing interest in livestock production and marketing in the region, livestock marketing research on a regional basis was initiated in the South in 1950. This research program operates under the official title "Regional Livestock Marketing Research in the Southern States—Regional Research Project SM–7." Research in livestock marketing in the Southern Region is conducted under the direction of the Southern Regional Livestock Marketing Research Committee in cooperation with the Agricultural Marketing Service (originally with the former Bureau of Agricultural Economics) of the United States Department of Agriculture.

The present study is a phase of the "Master Project" developed by the Southern Regional Livestock Marketing Research Committee. The study has the following objective: "To analyze the longtime outlook for southern livestock production, marketing, and prices as determined by trends in population, income, industrialization, consumer preference, and other factors." An analysis of the long-range outlook for the demand for meat and livestock was, the committee thought, the first logical step in this research proposal. The prospective location of the demand for meat and livestock especially as related to the South is of primary importance to southern regional livestock marketing research.

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Prospective Demand for Meat and Livestock in the South

By JOSEPH C. PURCELL

Assistant Economist, Georgia Agricultural Experiment Station

SUMMARY

The purpose of this study is to analyze the long-range outlook for the demand for meat and livestock [1] in the southern region [2] of the United States. This analysis will provide basic information for effective planning of future operations by livestock producers and marketing agencies in the South. Estimates of the prospective future demand for meat in the South will have important implications for transportation agencies; producers, processors, and distributors of feeds; livestock producers; and processors and distributors in all regions where the demand for their products and services and their competitive position will be affected by development in the South.

The present and prospective demand for meat in the South is analyzed within the framework of estimates of present and future demand for the entire country. Demand for meat in the United States has been the subject of other investigations by the Agricultural Marketing Service [3] and these estimates are used as established benchmarks for this study. The demand for and consumption of meat in the South are estimated in relation to the average for the United States. This demand and consumption are also related to those socio-economic characteristics of the southern region which are expected to influence existing differences in the level of demand and consumption between the region and the average of the country.

Regional differences in per capita meat consumption are associated primarily with regional differences in per capita income. In turn, regional differences in per capita income are associated with regional differences in the character of the resources, population, and stage of economic development. Specific socio-economic characteristics used in the analysis are: (1) Extent of urbanization, (2) age distribution of the population, (3) race or color, and (4) type of employment.

[1] Includes cattle, calves, hogs, and sheep and lambs; and the food products derived from the slaughter of these animals.

[2] Includes the States of Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia.

[3] Daly, Rex F. Preliminary Projections of the Long Run Demand for Farm Products. A progress report, U. S. Agr. Mktg. Serv. June 1954. [Unpublished.]

Population growth and estimates of the size of the population in the future are used in estimating aggregate demand and prospective demand.

On the basis of 1944 distribution data (*23*),[4] per capita consumption of meat in the South was estimated to be 84 percent of the national average. On the basis of 1948 data,[5] urban per capita consumption of meat by kinds in the South as a percentage of the United States average was estimated to be as follows: Beef, 73; veal, 82; pork, 112; lamb and mutton, 18. Differences in total meat consumption by 8 major geographic regions[6] in 1944 were closely associated ($r=.97$—semilog relationship) with regional per capita income. In turn, differences in per capita income for the same regions (1950) were associated with proportion of the population (1) urban, (2) over 15 years of age, (3) white, and (4) proportion of employed persons engaged in agriculture, forestry, and fisheries (negative relationship).

Per capita income in the South increased from 51 percent of the national average in 1929 to 68 percent in 1952. The proportion of the population in the South that was urban increased from 36 percent of the national average in 1900, to 66 percent in 1950. Proportion of the population that was white increased from 70 percent of the United States average in 1900 to 82 percent in 1950. Proportion of the population over 15 years of age in the South increased from 92 percent of the national average in 1930 to 94 percent in 1950. The proportion of employed persons engaged in agriculture, forestry, and fisheries in the South declined from 204 percent of the national average in 1930 to 176 percent in 1950. Trends in the socio-economic development of the South relative to the Nation which have been under way for several decades are expected to continue during the next two decades. Differences in income between the South and the average of the United States are expected to be reduced as the region continues to develop its natural and human resources.

The demand for and consumption of meat in the United States has been rising since the depression of the 1930's. The index of deflated expenditures for meat (1935–39=100) on a per capita basis increased from 94 in 1935 to 147 in 1952. During the same period per capita consumption rose from 116 to 144 pounds. With the level of national income to be expected under conditions of full employment and medium population projections, per capita demand for meat in the United States is projected to be around 168 pounds by 1975.[7]

Under the assumption of full employment and medium population projections the aggregate demand for meat in the United States is projected to around 35 or 36 billion pounds by 1975. On the basis of this study, per capita consumption of meat in the South is expected to increase from a level of 84.7 percent of the United States average in 1950 to 92.7 percent by 1975. Under conditions of full employment this would mean a rise in per capita consumption from an estimated 122 pounds in 1950 to 156 pounds in 1975. Population projections

[4] Italic numbers in parentheses refer to Literature Cited, p. 63.

[5] Special tabulation of data collected by the Bureau of Human Nutrition and Home Economics in spring of 1948. [Unpublished.] 1951.

[6] Northeast, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain, and Pacific.

[7] Daly, Rex F. (See footnote 3, on p. 1.)

indicate that the South will maintain the same proportion of the United States population in 1975 as the region contained in 1950. Aggregate demand for meat in the South is expected to rise from an estimated 3.8 billion pounds in 1950 to 6.6 billion pounds by 1975, assuming 1951–53 level of prices and price relationships, medium population projections, and a high level of employment.

Insufficient data and inadequate tools of research limit the accuracy of long-range projections of demand and consumption. Such estimates should be revised as additional data become available and techniques are improved. However, carefully prepared projections, based on the most accurate data available and using scientific research techniques, do establish benchmarks and supply guide lines useful from the standpoint of planning by producers and marketing agencies, in formulation of Government policies and programs, and in planning additional research which will be adapted to needs of a changing economic situation. Their use is decidedly preferable to action based on hastily developed estimates or uninformed guesswork.

The conclusions of this study indicate that the demand for meat in the South will continue to increase both absolutely and relative to the Nation as a whole. Further research is needed, however, in order to estimate the South's capacity and willingness to increase its livestock production to meet its rising demand for meat. Research is also needed to determine the extent to which the additional requirements will be provided by southern slaughterers and packers.

INTRODUCTION

FORMULATION OF THE STUDY AND RELATIONSHIP TO SOUTHERN REGIONAL LIVESTOCK MARKETING RESEARCH

Livestock production is important to agriculture in the southern region from the standpoint of present farm income and as a possible method of increasing southern farm income. Agricultural leaders have advocated an expansion of livestock production in the South to bring about a better balanced and sounder agricultural economy. The predominant pattern of row-crop farming in the South leaves a large part of the agricultural land and labor resources in a low state of productivity. However, agricultural income derived from the sale of livestock and livestock products is increasing in the South both in absolute terms and compared with the United States. Cash receipts from livestock and livestock products in the South stood at an index of 331 in 1948 (1935–1939=100) compared with an index of 275 for the United States.[8]

Expansion of the livestock industry in the South on a sound basis will depend on the following factors:

(1) Future demand for meat and livestock in the United States, with special emphasis on the proportion of the United States demand located in the South.

(2) Development and acceptance of improved livestock production technology in the South.

[8] Master Project Outline, Regional Livestock Marketing Research in the Southern States. Regional Research Project SM–7. (Unpublished.) 1950.

(3) Alternatives within agriculture in the region.
(4) Interregional competition in livestock production.

Location of the present and prospective demand for meat and livestock in the United States is important from the standpoint of planning livestock production and the location of marketing and processing facilities. An expansion in the demand for meat and livestock in the South, either absolutely or relative to the United States demand, might benefit producers in the South more than those in other regions. Producers in other regions have the disadvantage of transportation costs in supplying the market for meat and livestock in the South. However, certain disadvantages may offset transportation cost advantages to producers in regions of rapidly expanding demand.

In the short run, changes in either the supply of or the demand for meat are reflected in price changes.[9] And, in the long run, prices direct resource allocation with resulting changes in production patterns and levels of output. An expansion of livestock production without a change in prices can materialize only if demand expands. Consequently an analysis of demand is essential in evaluating the desirability of expanding livestock production in the South and of developing adequate and efficient marketing and processing facilities there.

OBJECTIVES AND PROCEDURE

The specific objective of the study upon which this report is based was to estimate the long-range outlook for the demand for meat and livestock in the South.[10] To reach the objective, the author did the following:

(1) Analyzed factors and trends likely to influence the levels of per capita meat consumption in the South relative to the United States.

(2) Analyzed the past and estimated future trends in population growth in the South and the United States.

(3) Within the framework of a prospective demand and supply of meat and livestock in the United States, estimated the proportion of this demand likely to develop in the southern region.

In developing the analyses the following hypotheses were advanced as the framework of the investigation:

(1) Regional differences in per capita meat consumption are associated with regional differences in per capita income. The relationship is expressed as follows: Given the national supply of meat in the short run, one can estimate regional per capita consumption of meat by using the regional per capita income as a percentage of the United States average.

Investigation of this hypothesis includes the analysis of (a) meat consumption in the South relative to other regions and to the United States, (b) relationship of per capita income and per capita meat consumption by regions, and (c) trends in income in the South relative to the United States.

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[9] Includes the products derived from the slaughter of cattle, calves, hogs, and sheep and lambs.

[10] In order to estimate the prospective demand in the South, it is necessary to analyze the long-run demand for the United States and estimate the relative changes in the South.

(2) Regional income differences are associated with certain population characteristics.

Investigation of this hypothesis includes analyses of (a) population characteristics associated with regional income differences, (b) trends in population characteristics in the South associated with regional income differences, and (c) influence of industrial and commercial developments in the South on the composition of the population and income.

(3) The proportion of the United States aggregate demand for meat and livestock located in the South is increasing.

Investigation of this hypothesis includes analyses of the following: (a) Population growth in the South and the United States, (b) demand for meat and livestock in the South and the United States, and (c) estimation of the long-run prospective demand for meat and livestock in the South, given the United States demand on the basis of trends in population, income, and associated factors.

MEAT CONSUMPTION IN THE SOUTH AND THE UNITED STATES

Assuming meat prices are uniform throughout the country, regional differences in the quantity of meat consumed would represent regional differences in per capita demand. Given the annual supply of meat for the Nation, per capita consumption of meat in each region is approximately proportionate to the level of demand. Aggregate consumption by regions is a function of population and the per capita consumption.

TRENDS IN PER CAPITA MEAT CONSUMPTION IN THE UNITED STATES

Although per capita consumption of meat in the United States has fluctuated for short periods, the long-run trend has remained fairly stable for most kinds of meat (table 1 and fig. 1). Consumption of beef, veal, pork, and lamb and mutton combined on a per capita basis shows a slight downward trend from 1910 to 1935. The low point for the period 1910–50 in per capita meat consumption occurred in 1935. Since 1935 the trend in per capita meat consumption has been slightly upward. The highest level of consumption since 1910 occurred in 1953 and 1954.

Except for the short-period fluctuations, the supply of meat has increased at approximately the same rate as the increase in the population. In the short period, per capita consumption of meat is determined by the supply available. In the long period, sufficient time is allowed for production to adjust to demand as influenced by population growth, income, and other factors.

Per capita consumption of beef, veal, pork, and lamb and mutton have also fluctuated in short periods absolutely and relative to one another (table 1). However, except for the sharp drop in lamb consumption since 1945, the per capita consumption of meat has remained fairly stable in the long run.

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TABLE 1.—*Per capita meat consumption in the United States, 1910–54*

Year	Beef	Veal	Pork	Lamb and mutton	All meats
	Pounds	*Pounds*	*Pounds*	*Pounds*	*Pounds*
1910	69. 5	7. 1	61. 4	6. 4	144. 4
1911	67. 5	7. 0	68. 1	7. 2	149. 8
1912	63. 6	6. 9	65. 7	7. 6	143. 8
1913	62. 5	6. 2	65. 9	7. 1	141. 7
1914	61. 1	5. 7	64. 2	7. 1	138. 1
1915	55. 6	5. 8	65. 6	6. 0	133. 0
1916	58. 1	6. 3	68. 1	5. 7	138. 2
1917	63. 7	7. 1	58. 1	4. 4	133. 3
1918	67. 6	7. 2	60. 2	4. 7	139. 7
1919	60. 7	7. 8	63. 0	5. 6	137. 1
1920	58. 3	7. 9	62. 6	5. 4	134. 2
1921	54. 7	7. 5	63. 9	6. 0	132. 1
1922	58. 3	7. 7	64. 8	5. 1	135. 9
1923	58. 8	8. 1	73. 2	5. 2	145. 3
1924	58. 7	8. 4	73. 0	5. 2	145. 3
1925	58. 6	8. 5	65. 8	5. 1	138. 0
1926	59. 4	8. 0	63. 3	5. 4	136. 1
1927	53. 7	7. 3	66. 8	5. 2	133. 0
1928	48. 1	6. 4	69. 9	5. 4	129. 8
1929	49. 0	6. 2	68. 7	5. 5	129. 4
1930	48. 2	6. 4	66. 1	6. 6	127. 3
1931	47. 9	6. 6	67. 4	7. 0	128. 9
1932	46. 0	6. 5	69. 7	7. 0	129. 2
1933	50. 8	7. 0	69. 8	6. 7	134. 3
1934	63. 0	9. 2	63. 6	6. 2	142. 0
1935	52. 5	8. 4	47. 7	7. 2	115. 8
1936	59. 7	8. 3	54. 4	6. 5	128. 9
1937	54. 4	8. 5	55. 0	6. 6	124. 5
1938	53. 6	7. 6	57. 4	6. 8	125. 4
1939	53. 9	7. 5	63. 9	6. 5	131. 8
1940	54. 2	7. 3	72. 4	6. 5	140. 4
1941	60. 0	7. 5	67. 4	6. 7	141. 6
1942	60. 4	8. 1	62. 8	7. 1	138. 4
1943	52. 5	8. 1	77. 9	6. 4	144. 9
1944	54. 9	12. 2	78. 5	6. 6	152. 2
1945	58. 6	11. 7	65. 7	7. 2	143. 2
1946	60. 8	9. 8	74. 9	6. 6	152. 1
1947	68. 6	10. 7	68. 6	5. 2	153. 1
1948	62. 2	9. 4	66. 8	5. 0	143. 4
1949	63. 0	8. 8	66. 8	4. 0	142. 6
1950	62. 5	7. 9	68. 1	3. 9	142. 4
1951	55. 2	6. 6	70. 6	3. 4	135. 8
1952	61. 2	7. 1	71. 6	4. 1	144. 0
1953	76. 6	9. 5	62. 9	4. 6	153. 6
1954	79. 3	9. 9	60. 0	4. 5	153. 7

Compiled from Consumption of Food in the United States (*18*) and Supplement.

Pork and beef are the principal meats consumed in the United States. The importance of these meats varies from year to year. Over the long run, pork consumption has been about equal to the consumption of beef and veal combined. However, there has been a tendency for production and consumption of beef to increase relative to that of pork.

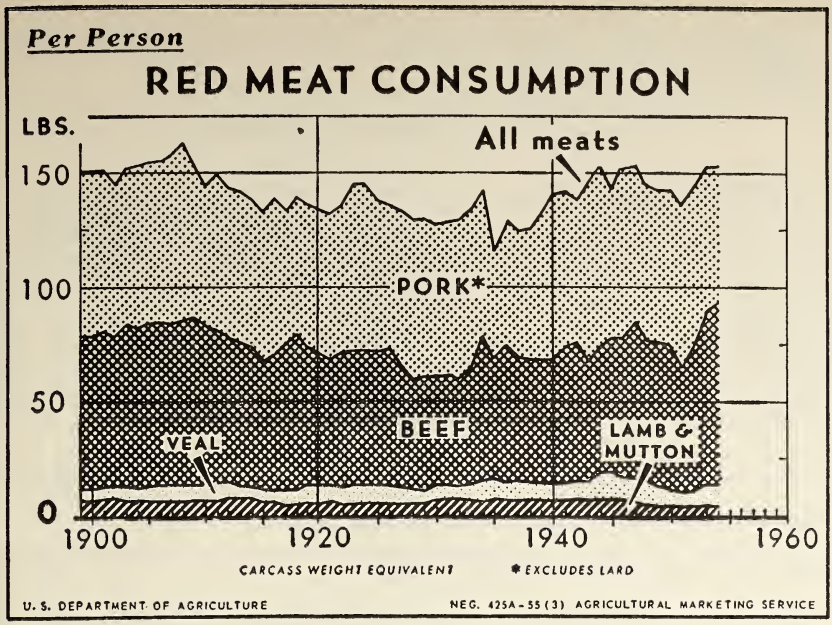

FIGURE 1.—Per capita meat consumption, by kinds of meat, United States, 1899–1954.

MEAT CONSUMPTION IN THE SOUTH RELATIVE TO THE UNITED STATES AND OTHER REGIONS

REGIONAL DIFFERENCES IN URBAN MEAT CONSUMPTION

A large part of the consumption of meat in the United States or any region is represented by the urban consumption. The major part of any future increase in the market for meat will likely come from urban population.[11]

The most recent data available on the regional differentials in urban meat consumption are from a survey made by the Bureau of Human Nutrition and Home Economics in the spring of 1948. This survey included 68 randomly selected cities throughout the United States.[12] These data were summarized into four major geographic regions. This survey may not be an accurate representation of total annual per capita consumption for any given region due to seasonal variation in consumption and other factors. However, it should indicate the regional differentials in urban meat consumption by kinds of meat.

Urban meat consumption in the South in 1948, according to this analysis, was approximately 85 percent as large as the national average. Urban per capita meat consumption was highest in the North Central and Western regions and lowest in the South and Northeast. The differences in consumption rates between three of the regions excluding the South were slight. The South was the only region in which the urban per capita rate of consumption was below the United States average (table 2).

[11] People employed in urban centers may move into suburban areas, but they will largely retain the characteristics of urban people.

[12] Includes cities of 2,500 population or more.

TABLE 2.—*Estimated per capita urban meat consumption, retail weight, by four major geographic regions of the United States, 1948*

United States and regions	Total meat excluding poultry and fish		
	Per capita consumption		Region as percentage of United States average
	Week [1]	Year [2]	
	Pounds	*Pounds*	*Percent*
Northeastern	2. 41	125. 3	101
North Central	2. 59	134. 7	109
Southern	2. 02	105. 0	85
Western	2. 53	131. 6	106
United States	2. 38	123. 8	100

[1] Computed by dividing average quantity per household by average number of persons per household.
[2] Weekly consumption expanded to an annual basis.

U. S. Bureau of Human Nutrition and Home Economics, U. S. Department of Agriculture. (Unpublished research.) 1950.

Urban meat consumption by regions on a household basis from which the estimates of per capita consumption were made is presented in table 3.

TABLE 3.—*Urban meat consumption by region: Percentage of households reporting consumption of meat in a week, standard deviation and coefficient of variation, spring 1948* [1]

Region	Total households	Average household size in equivalent persons	Total meat excluding poultry and fish			
			Households reporting consumption in a week	Average quantity per household	Standard deviation	Coefficient of variation
	Number	*Number*	*Percent*	*Pounds*	*Pounds*	*Percent*
Northeastern	582	3. 49	99. 7	8. 42	4. 862	58
North Central	482	3. 33	99. 8	8. 63	4. 597	53
Southern	230	3. 59	99. 6	7. 27	3. 947	54
Western	264	3. 23	99. 2	8.·17	4. 850	59

[1] t=4.049, value of "t" at 0.01 level=2.581 with 1,000 degrees of freedom. Mean value of South was tested against a weighted mean for the remaining three regions.

Bureau of Human Nutrition and Home Economics, U. S. Department of Agriculture. (Unpublished research.) 1950.
By special request of the Division of Marketing and Transportation Research, Bureau of Agricultural Economics, the Bureau of Human Nutrition and Home Economics summarized the urban meat consumption data by 4 major geographic regions. These data on the regional distribution of urban meat consumption taken on a food consumption survey made in the spring of 1948 have not been published by the Bureau of Human Nutrition and Home Economics.

Beef and pork are the most important kinds of meat consumed by the urban population in all four major geographic regions. Except in the South, where pork is more important, beef accounts for the largest part of the urban consumption of meat. Regional differences in kinds of meat consumed are greatest for lamb and least for pork.

Beef

The consumption of beef on a per capita basis (urban) was highest in the western region and lowest in the South. Beef was the largest part of the total meat consumed in the West and the least in the South. Although considerably less important in the South than in other regions, beef accounted for almost 40 percent of the meat consumed by southern urban families. In only 1 region, the western, did beef account for more than 50 percent of the total consumption. A major part of the difference in total meat consumption between the South and other regions was accounted for by a difference in beef consumption. The per capita consumption of beef (urban) in the South was only 73 percent as high as the United States average or approximately 13 pounds less (table 4).

Aggregate urban consumption of beef in the South represents less than 10 percent of the urban beef consumption of the United States (table 5).[13] The Northeastern and North Central regions combined account for roughly two-thirds of the urban consumption of beef.

TABLE 4.—*Per capita urban consumption of beef, retail weight, by four major geographic regions of the United States, 1948*

United States and regions	Per capita consumption of beef		Percentage of United States average	Beef as percentage of total meat [3]
	Week [1]	Year [2]		
	Pounds	*Pounds*	*Percent*	*Percent*
Northeastern	0. 93	48. 4	99	45. 6
North Central	1. 02	53. 0	108	47. 2
Southern	. 69	35. 9	73	39. 4
Western	1. 14	59. 3	121	52. 2
United States	. 94	48. 9	100	46. 8

[1] Computed by dividing average quantity per household by number of persons per household.
[2] Weekly consumption expanded to annual basis.
[3] Excluding poultry, fish, and processed meats.

Bureau of Human Nutrition and Home Economics, U. S. Department of Agriculture. (Unpublished research.)

Veal

The regional differences in per capita urban consumption were considerably larger for veal than for beef percentagewise.[14] Veal consumption in the Northeast (7.28 pounds per capita) was more than

[13] About 13.7 percent of the urban population of the United States was located in the South in 1950.
[14] Veal also includes "calf" meat in some areas of the country, particularly in the South and Southwest.

TABLE 5.—*Estimated total urban consumption of beef, retail weight, by four major geographic regions of the United States, 1948*

United States and regions	Per capita consumption [1]	Urban population [2]	Total urban consumption	Percentage of United States total
	Pounds	*Thousands*	*Million pounds*	*Percent*
Northeastern	48. 36	32, 820	1, 587	33. 9
North Central	53. 04	28, 549	1, 514	32. 4
Southern	35. 88	12, 749	457	9. 8
Western	59. 28	18, 898	1, 120	23. 9
United States	48. 88	93, 016	4, 678	100. 0

[1] U. S. Bureau of Human Nutrition and Home Economics, U. S. Department of Agriculture. (Unpublished research.) 1950.
[2] 1950 population reduced by 3 percent. U. S. Bureau of the Census (*13*).

twice the consumption (3.38 pounds per capita) in the West (table 6). Per capita urban consumption of veal in the South (4.68 pounds) was considerably less than the United States average (5.72 pounds). But, veal represents a larger part of the total urban consumption of meat in the South (5.2 percent excluding poultry, fish, and processed meats) than in any region except the Northeast (6.9 percent). In contrast, veal consumption accounts for only 3.0 percent of the total meat consumption in the West.

In 1948 per capita urban consumption of veal in the South was 82 percent of the United States average. But this is considerably higher than beef consumption relative to the national average. However, in both the South and the United States veal is of much less importance than beef in the total meat consumption of the urban population.

TABLE 6.—*Per capita urban consumption of veal, retail weight, by four major geographic regions of the United States, 1948*

United States and regions	Per capita consumption of veal		Percentage of United States average	Veal as percentage of total meat [3]
	Week [1]	Year [2]		
	Pounds	*Pounds*	*Percent*	*Percent*
Northeastern	0. 14	7. 3	128	6. 9
North Central	. 105	5. 5	96	4. 9
Southern	. 09	4. 7	82	5. 2
Western	. 065	3. 4	60	3. 0
United States	. 11	5. 7	100	5. 5

[1] Computed by dividing average quantity per household by number of persons per household.
[2] Weekly consumption expanded to an annual basis.
[3] Excluding poultry, fish, and processed meats.

Bureau of Human Nutrition and Home Economics, U. S. Department of Agriculture. (Unpublished research.) 1950.

The Northeastern and North Central regions combined accounted for more than 75 percent of the urban consumption of veal in the United States (table 7). The South accounted for only 11.6 percent of urban veal consumption in the United States.

TABLE 7.—*Estimated total urban consumption of veal, retail weight, by four major geographic regions, United States, 1948*

United States and regions	Per capita consumption [1]	Urban population [2]	Total urban consumption	Percentage of United States total
	Pounds	*Thousands*	*Million pounds*	*Percent*
Northeastern	7. 28	32, 820	239	46. 0
North Central	5. 46	28, 549	156	30. 0
Southern	4. 68	12, 749	60	11. 6
Western	3. 38	18, 898	64	12. 3
United States	5. 72	93, 016	519	100. 0

[1] U. S. Bureau of Human Nutrition and Home Economics, U. S. Department of Agriculture. (Unpublished research.) 1950.

[2] 1950 population reduced by 3 percent. Compiled from U. S. Bureau of the Census (*13*).

Pork

Per capita urban consumption of pork was highest in the North Central region (51.48 pounds per capita) and lowest in the West (43.16 pounds per capita) (table 8). Per capita pork consumption (urban) in the South (49.40 pounds) exceeded the United States average (44.20 pounds) by more than 5 pounds. Percentagewise, this amounts to approximately 12 percent and indicates the relative importance of pork in the meat diet of the southern urban population. The South was the only region in which pork represented more than 50 percent of the total urban consumption of meat. Pork represented only 37.7 percent of the total urban consumption of meat in the Northeast and only 38.0 percent of the total in the West.

The South consumed an estimated 15 percent of the total urban consumption of pork in the United States (1948). This constituted a larger share of the United States consumption than that of any other kind of meat considered in this study (table 9). The North Central region consumed more than a third of the total urban consumption of pork in the United States, the Northeast slightly less than a third, and the West slightly less than a fifth.

Lamb

Consumption of lamb makes up the smallest part of the total meat consumed (5.4 percent) by the urban population of the United States and shows the greatest difference among regions (percentagewise) (table 10). Per capita lamb consumption was ten times greater in the Northeast (10.4 pounds) than in the South (1.0 pound). Per capita urban consumption of lamb in the West (7.8 pounds) was three-

fourths (75 percent) that of the Northeast, while consumption in the North Central (2.1 pounds) was only a fifth (20 percent) that of the Northeast. Although lamb is not generally a major item in urban meat diets, it is considerably more important in the Northeast and West than in other regions.

TABLE 8.—*Per capita urban consumption of pork, retail weight, by four major geographic regions of the United States, 1948*

United States and regions	Per capita consumption of pork		Percentage of United States average	Pork as percentage of total meat [3]
	Week [1]	Year [2]		
	Pounds	*Pounds*	*Percent*	*Percent*
Northeastern	0. 77	40. 0	90	37. 7
North Central	. 99	51. 5	117	45. 9
Southern	. 95	49. 4	112	54. 3
Western	. 83	43. 2	98	38. 0
United States	. 85	44. 2	100	42. 3

[1] Computed by dividing the average quantity per household by number of persons per household.
[2] Weekly consumption expanded to annual basis.
[3] Excluding poultry, fish, and processed meat.

U. S. Bureau of Human Nutrition and Home Economics, U. S. Department of Agriculture. (Unpublished research.) 1950.

TABLE 9.—*Estimated total urban pork consumption, retail weight, by four major geographic regions of the United States, 1948*

United States and regions	Per capita consumption [1]	Urban population [2]	Total urban consumption	Percentage of United States total
	Pounds	*Thousands*	*Million pounds*	*Percent*
Northeastern	40. 04	32, 820	1, 314	31. 1
North Central	51. 48	28, 549	1, 470	34. 7
Southern	49. 40	12, 749	630	14. 9
Western	43. 16	18, 898	816	19. 3
United States	44. 20	93, 016	4, 230	100. 0

[1] U. S. Bureau of Human Nutrition and Home Economics, U. S. Department of Agriculture. (Unpublished research.) 1950.
[2] 1950 population reduced by 3 percent. Compiled from U. S. Bureau of the Census (*13*).

Only 2.3 percent of the total urban consumption of lamb in the United States was consumed in the South (table 11). Almost 61 percent of the total was consumed in the Northeast which, together with the western region, accounted for approximately 87 percent of total urban lamb consumption of the Nation.

TABLE 10.—*Per capita urban consumption of lamb and mutton, retail weight, by four major geographic regions of the United States, 1948*

United States and regions	Per capita consumption of lamb and mutton		Percentage of United States average	Lamb and mutton as percentage of total meat [3]
	Week [1]	Year [2]		
	Pounds	*Pounds*	*Percent*	*Percent*
Northeastern	0. 20	10. 4	182	9. 8
North Central	. 04	2. 1	37	1. 9
Southern	. 02	1. 0	18	1. 1
Western	. 15	7. 8	137	6. 9
United States	. 11	5. 7	100	5. 4

[1] Computed by dividing average quantity per household by number of persons per household.
[2] Weekly consumption expanded to an annual basis.
[3] Excluding poultry, fish, and processed meat.

U. S. Bureau of Human Nutrition and Home Economics, U. S. Department of Agriculture. (Unpublished research.) 1950.

TABLE 11.—*Estimated total urban consumption of lamb and mutton, retail weight, by four major geographic regions of the United States, 1948*

United States and regions	Per capita consumption [1]	Urban population [2]	Total urban consumption	Percentage of United States total
	Pounds	*Thousands*	*Million pounds*	*Percent*
Northeastern	10. 4	32, 820	341	60. 8
North Central	2. 1	28, 549	60	10. 7
Southern	1. 0	12, 749	13	2. 3
Western	7. 8	18, 898	147	26. 2
United States	5. 7	93, 016	561	100. 0

[1] U. S. Bureau of Human Nutrition and Home Economics, U. S. Department of Agriculture. (Unpublished research.) 1950.
[2] 1950 population reduced by 3 percent. Compiled from U. S. Bureau of the Census (*13*).

REGIONAL DIFFERENCES IN TOTAL PER CAPITA MEAT CONSUMPTION

Per capita consumption of meat both rural and urban by regions is available for only 1 year (1944). These data were obtained from the Office of Price Administration records on civilian meat distribution. Total meat consumption data (rural and urban) are not available for each kind of meat but only for beef, pork, veal, and lamb and mutton combined. But these data do permit dividing the Nation into a larger number of regions and thus make it possible to study the relationship between per capita consumption of meat and per capita incomes.

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Per capita consumption of meat in the South in 1944 (rural and urban combined) was considerably less than the United States average or that of other regions (table 12). The 2 regions defined as the South in this study (South Atlantic and East South Central) are the only 2 of the 8 regions appreciably below the United States average. Per capita consumption of meat in the South Atlantic region was 84 percent, and that in the East South Central region 80 percent of the United States average. None of the other regions were less than 95 percent of the United States average.[15]

TABLE 12.—*Per capita consumption of meat, carcass weight including estimate of farm slaughter, by eight geographic regions of the United States, 1944*

Region	Per capita consumption of meat	Region as percentage of United States
	Pounds	*Percent*
North Atlantic	157. 4	105. 9
South Atlantic	125. 2	84. 2
East South Central	119. 5	80. 4
West South Central	143. 1	96. 3
East North Central	157. 9	106. 3
West North Central	147. 5	99. 3
Mountain	143. 4	96. 5
Pacific	166. 7	112. 2
United States	148. 6	100. 0

U. S. Office of Price Administration (*23*).

Per capita meat consumption was highest in the Pacific States. The remaining four regions were all slightly above or slightly below the national average. Except for the high consumption in the Pacific and the low consumption in the South, there appears to be only a slight variation in the level of meat consumption among regions.[16]

RELATIONSHIP OF PER CAPITA MEAT CONSUMPTION AND PER CAPITA INCOME BY REGIONS

Per capita consumption of meat and per capita income by regions (table 13) were converted to a relative basis showing each region as a percentage of the United States average (table 14 and fig. 2). These 2 sets of data were converted to index numbers in order to show the association between the level of income and level of meat consumption by regions in 1944. Per capita income (especially measured in dollars) and per capita consumption of meat in the United States both vary from year to year. Similar changes would be expected to occur in the various regions.[17]

[15] Differences within regions are also recognized but not analyzed in this study.

[16] Analysis of meat consumption among regions is limited because data are available for only 1 year.

[17] The crucial assumption made here and used later in the analysis is that the relationship between the ratio of per capita consumption of meat and the ratio of per capita income in each region to the United States average remains constant over time.

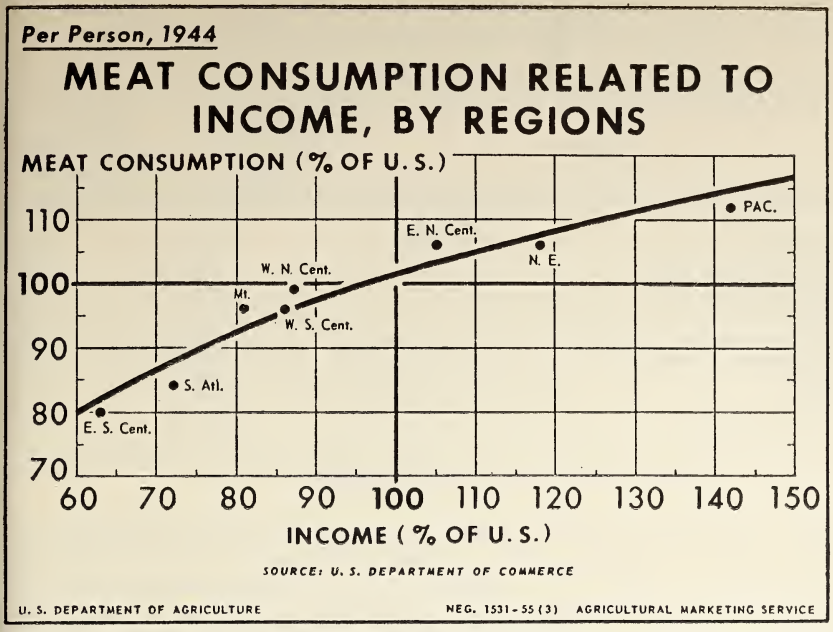

FIGURE 2.—Relationship of the indices of per capita income and per capita meat consumption by regions of the United States, 1944.

TABLE 13.—*Per capita income and meat consumption by regions of the United States, 1944*

Region	Per capita income [1]	Per capita meat consumption [2]
	Dollars	*Pounds*
Northeast	1,374	157.4
East North Central	1,219	157.9
West North Central	1,009	147.5
South Atlantic	833	125.2
East South Central	727	119.5
Southern region [3]	786	122.8
West South Central	994	143.1
Mountain	941	143.4
Pacific	1,652	166.7
United States	1,161	148.6

[1] Compiled from Survey of Current Business (*21*).
[2] Compiled from Civilian Meat Distribution (*23*).
[3] South Atlantic and East South Central combined.

TABLE 14.—*Index of per capita income and meat consumption by regions of the United States, 1944*

(U. S.=100)

Region	Index of per capita income	Index of per capita meat consumption
Northeast	118	106
East North Central	105	106
West North Central	87	99
South Atlantic	72	84
East South Central	63	80
Southern region [1]	68	83
West South Central	86	96
Mountain	81	96
Pacific	142	112
United States	100	100

[1] South Atlantic and East South Central combined.

On a regional basis, the index (United States=100) of per capita consumption of meat in 1944 was associated with the index of per capita income. The data indicate that a given percentage change in income in the lower income range is associated with a greater percentage change in meat consumption than in the higher income range.[18]

The high correlation of per capita income with several characteristics of the population analyzed in following sections indicates that population characteristics are also associated with per capita meat consumption, primarily through their effect on income. However, it seems that the regional differences in per capita income directly account for a greater part of the regional differences in per capita meat consumption. Characteristics of the population in turn are associated with per capita income. However, there are other factors apart from

[18] The regression equation

$Y=a+b \log X$

a and b computed from the 1944 data

$Y=82.7+91.8 \log X$

Y=estimated per capita consumption of meat in the South as a percent of the United States average

X= per capita income in the South as a percent of the United States average

provides a technique for estimating the per capita consumption of meat in the South given the United States per capita consumption, United States per capita income, and per capita income in the South.

Acceptance of this technique is based on the further assumption that per capita consumption of meat in the United States is determined largely (neglecting the relatively small quantity of imports, exports, and storage) by the volume of livestock slaughter in the current year, and that the level of consumption in each region is associated with per capita income relative to the United States average in the same way as in 1944. By expressing the relationship as a ratio rather than in absolute terms, the emphasis of the relationship derived from the 1944 data is placed on the ratio of per capita income in each region to the United States average rather than on absolute income. It is recognized that prices vary with absolute changes in income, but prices are not considered at this phase of the study. However, this relationship permits the expression of demand in the South in quantitative terms relative to a base (United States) for which annual data are available.

income that would be expected to influence per capita meat consumption. Nationality and religion are two factors that possibly influence meat consumption directly rather than indirectly through income. These factors may play an even more influential role in regional differentials in the kinds of meat consumed than in total meat consumption.

TRENDS IN INCOME IN THE SOUTH RELATIVE TO THE UNITED STATES

Per capita income along with size of population are the factors influencing the prospective market for meat and livestock in the South. In this chapter trends in income in the South relative to the United States are analyzed with implications of how these trends influence the market for meat and livestock in the region.

AGGREGATE INCOME AND TRENDS IN THE SOUTH COMPARED WITH THE UNITED STATES

Dollar income payments to individuals in the United States increased from 46 billions in 1933 to 255 billions in 1952 (*22*). Perhaps a better measure of the change in dollar income would be to compare 1929, the last year of prosperity before the depression of 1929–35, with 1949, another prosperous peacetime year 20 years later. The gross national income increased from 83 billion dollars in 1929 to 197 billions in 1949, or approximately 137 percent (fig. 3). As the percentage of national income spent for meat remains rather constant, retail expenditures for meat increased proportionately with the increase in income (*7*, p. 39). The greater part of the increases in both income and expenditures for meat came during and after World War II.

In the South, between 1929 and 1949, the income payments to individuals increased from 8.5 to 26.5 billion dollars. This increase of 212 percent was considerably larger than the national increase of 137 percent. Assuming that the percentage of disposable income spent for meat in the South was similar in both periods, actual expenditures for meat would have increased in the South relative to the Nation as a whole between 1929 and 1949.[19] This comparison would indicate that a relatively large share of the increase in the demand for meat in the United States in the last 20 years has occurred in the South.

AGGREGATE INCOME AND TRENDS IN INDIVIDUAL SOUTHERN STATES COMPARED WITH THE ENTIRE REGION AND THE UNITED STATES

The rate of increase in aggregate income 1929–49 was greater than the national rate in every State in the Southern region (table 15). As a group, the South Atlantic States—Virginia, the Carolinas, Georgia, and Florida—had a more rapid rate of increase in aggregate income during the last two decades than the remainder of the Southern region. Florida is the leading State in rate of increase in aggregate income and is followed by South Carolina, North Carolina, and Virginia. Mississippi, West Virginia, and Arkansas had the slowest

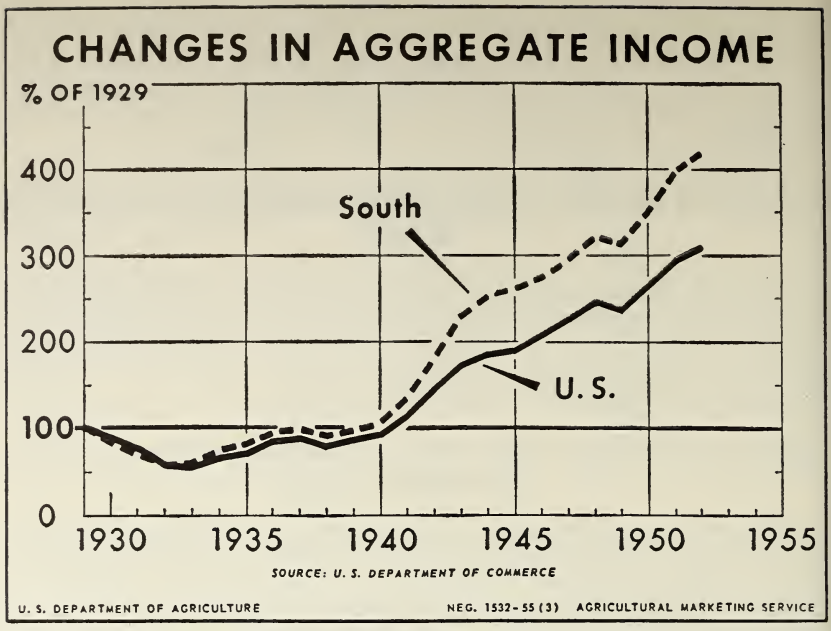

FIGURE 3.—Changes in index of aggregate income in the Southern region and the United States, 1929–52. (Compiled from Survey of Current Business (22).)

rate of increase. The variation among States in rate of income change gives some indication of where the greatest increase in the demand for meat is occurring within the Southern region.

From 1929 to 1939, when the Nation's income declined as a whole, aggregate income actually increased in some States of the South. The region as a whole showed only a 2.6 percent decline, while the rest of the Nation showed a decline of 15.9 percent. From 1929 to 1939 aggregate income payments to individuals increased in Florida, North Carolina, South Carolina, and Virginia. But in Alabama, Arkansas, and Mississippi they showed a sharper decline than the average of the United States. In the decade 1939–49 the aggregate income increased at a faster rate in all the Southern States except West Virginia than the average for the United States. This comparison of the South and non-South shows that aggregate income has increased in the South relative to the United States in both depression and war prosperity (table 15).

The South's share of the national income increased from 10.3 percent in 1929 to 11.7 percent in 1939 to 13.4 percent in 1949. The proportion of the national income received by the South increased about a third between 1929 and 1949.

[39] Since the South has a relatively larger proportion of low-income families and consumer studies show that low-income families spend a larger portion of their income for food, it is likely that expenditures for meat as a percentage of disposable income are greater for the region than for the Nation.

TABLE 15.—*Percentage change in total income payments to individuals, Southern region, by States and United States, 1929–39, 1939–49, 1929–49*

State	Percentage change		
	1929–39	1939–49	1929–49
	Percent	*Percent*	*Percent*
Alabama	−15. 1	+238. 6	+187. 5
Arkansas	−15. 0	+204. 8	+159. 2
Florida	+17. 8	+261. 4	+325. 9
Georgia	−5. 8	+225. 7	+207. 0
Louisiana	−4. 0	+220. 4	+207. 8
Mississippi	−19. 9	+205. 3	+144. 7
North Carolina	+12. 8	+208. 3	+247. 9
South Carolina	+12. 5	+221. 7	+262. 1
Tennessee	−5. 8	+233. 0	+213. 9
Virginia	+0. 9	+224. 3	+227. 2
West Virginia	−10. 0	+172. 1	+145. 0
Southern region	−2. 6	+220. 9	+212. 6
United States	−14. 6	+178. 7	+138. 2
United States (excluding the Southern region)	−15. 9	+173. 1	+129. 6

Compiled from Survey of Current Business (*22*, p. 12.)

PER CAPITA INCOME AND TRENDS IN THE SOUTH COMPARED WITH THE UNITED STATES

Per capita income in the South relative to per capita income in the Nation has been rising steadily since about 1931. A comparison of the 2 peacetime years, 1929 and 1949, 20 years apart, shows that per capita income in the South as a percentage of the national average increased 27 percent. In 1929 the per capita income in the South was slightly more than half the national average; by 1949 it had increased to two-thirds of the national average. Although per capita income in the South is still comparatively low, the region has improved its relative position during the last 20 years.

Figure 4 shows the decreasing per capita income differences between regions of the United States, 1929 and 1949 (Appendix B, table 47). All the regions above the national average in 1929 except the North Central decreased relatively by 1949. The North Central region maintained the same relative position—slightly above the national average. Regions with per capita incomes below the national average in 1929 improved their relative position by 1949.

PER CAPITA INCOME AND TRENDS OF SOUTHERN STATES COMPARED WITH THE REGION AND THE UNITED STATES

The increase in per capita income between 1929 and 1949 was greater in every State in the South than the national average increase (table 16). However, there was considerable variation among the States within the region. West Virginia showed the least increase and South Carolina, in the heart of the South Atlantic, the greatest. South Caro-

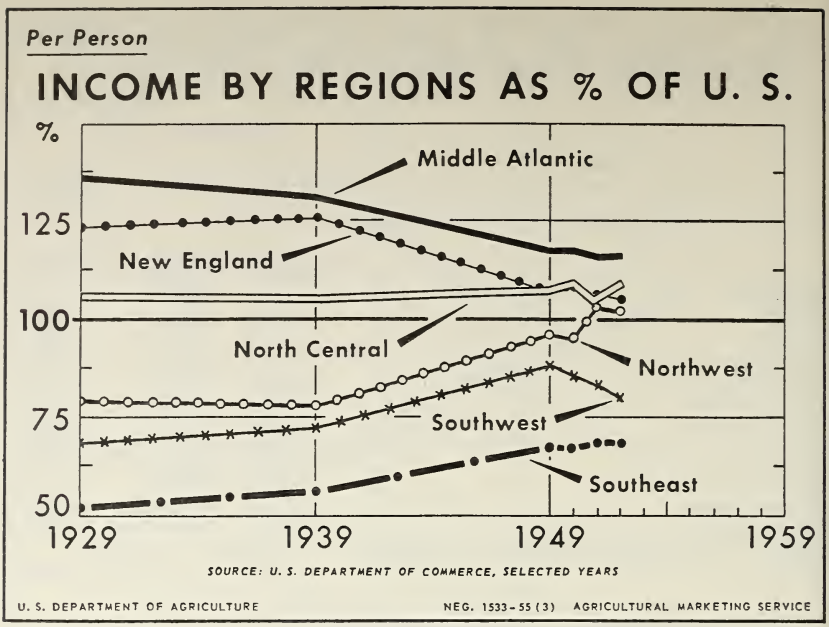

FIGURE 4.—Regional per capita income as a percentage of the United States average, 1929, 1939, 1949, and 1950–52.

lina was the only Southern State not showing a decline in per capita income between 1929 and 1939.

Florida, Louisiana, Virginia, and West Virginia were above the regional average in per capita income in 1929 and these States remained there from 1929 to 1952 (appendix B, table 46). The differences between States in the South narrowed from 1929 to 1952, especially during the decade 1940–50. In 1929 the high State in per capita income (Florida) was 92 percent above the low State (South Carolina). But in 1950 the high State in the region (Florida) was only 71 percent above the low State (Mississippi) and only 42 percent above South Carolina. North Carolina, Georgia, and Tennessee were near the average of the region in per capita income during the entire period of 1929–52. Alabama, Arkansas, Mississippi, and South Carolina were below the average of the region from 1929 to 1952.

In 1939, 55 percent of the persons in the labor force in the South received less than $400 in annual wage and salary income as compared with 37 percent for the rest of the Nation (*15*). This comparison indicates (1) lower wage and salary scales in the South, and (2) a higher proportion of the labor force of the South self-employed and receiving no wage or salary income.

Food consumption surveys (1948) show that for the lower third of the income scale meat consumption in the United States has increased 19 percent since 1942, while in the upper two-thirds of the income scale it has remained constant (*9*). Therefore, per capita meat consumption in the South should have increased relative to the United States and other regions since 1942.

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TABLE 16.—*Changes in per capita income, 1929–39, 1939–49, 1929–49, 1949–52, Southern Region by States and the United States*

State	Income				Percentage change			
	1929	1939	1949	1952	1929–39	1939–49	1929–49	1949–52
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Percent*	*Percent*	*Percent*	*Percent*
Alabama	305	242	768	1, 012	−20. 7	+217. 3	+151. 8	+31. 8
Arkansas	305	246	794	951	−19. 4	222. 8	160. 3	19. 8
Florida	484	442	1, 105	1, 319	−8. 7	150. 0	128. 3	19. 4
Georgia	329	290	874	1, 137	−11. 9	201. 4	165. 6	30. 1
Louisiana	415	354	1, 008	1, 206	−14. 7	184. 7	142. 9	19. 6
Mississippi	273	201	641	818	−26. 4	218. 9	134. 8	27. 6
North Carolina	309	308	852	1, 049	−0. 3	176. 6	175. 7	23. 1
South Carolina	252	261	791	1, 099	+3. 6	203. 1	213. 9	38. 9
Tennessee	349	295	870	1, 126	−15. 5	194. 9	149. 3	29. 4
Virginia	422	402	1, 046	1, 322	−4. 7	160. 2	147. 9	26. 4
West Virginia	464	378	1, 003	1, 232	−18. 5	165. 3	116. 2	22. 8
Southern region	355	311	886	1, 116	−12. 4	184. 9	149. 6	25. 9
United States	680	539	1, 325	1, 639	−20. 7	145. 8	94. 8	23. 7
Southern region as percentage of United States	*Percent* 52. 2	*Percent* 57. 7	*Percent* 66. 9	*Percent* 68. 1	+10. 5	15. 9	28. 2	1. 8

Compiled from Survey of Current Business (*22*, p. 13).

POPULATION CHARACTERISTICS ASSOCIATED WITH INCOME DIFFERENCES

Preceding analysis indicates that most of the difference in per capita meat consumption among regions of the United States is associated with differences in per capita income. Therefore, it is assumed in the following analyses that characteristics of the population by regions exert their influence on meat consumption primarily indirectly through their influence on income.

POPULATION CHARACTERISTICS ASSOCIATED WITH REGIONAL PER CAPITA INCOME DIFFERENCES

Regional differences in per capita income relative to the United States average are associated with (1) rural-urban distribution, (2) age distribution, (3) color distribution of the population, and (4) distribution of the labor force by major industry groups. In the following analysis the measurements used for the independent variables by regions and also computed relative to the United States average are: Proportion of the population (1) urban, (2) over 15 years of age, (3) white, and (4) proportion of employed persons engaged in agriculture, forestry and fisheries (primary industries).[20]

Urbanization is an indicator of economic and industrial advancement. Incomes are generally higher in cities than in rural areas. Consequently, the regions with the larger proportion of population urban are expected to have the higher per capita incomes. The degree of urbanization is naturally inversely associated with the proportion of the labor force employed in agriculture, forestry, and fisheries (the fourth independent variable).

Age distribution of the population, especially the proportion of the population over 15 years of age, indicates the proportion of the population in the labor force. As the proportion of the population over 15 years of age by regions increases, per capita income is expected to increase. Regions ranking low in the percent of the population over 15 years of age have higher birth rates, or higher out-migration of young adults, or both. Either or both these factors contribute to a large proportion of the population in the unproductive age group.

The Negro population is concentrated in the low income regions. Outside of the three Southern regions (South Atlantic, East South Central, and West South Central), the Negro population is a relatively small proportion of the total population.

Agriculture, forestry, and fishing (the primary industries) are generally considered to be the lowest paid or least productive of the major occupational groups as income is computed. But agricultural income varies considerably by regions. In a more detailed analysis than is attempted in this study, a measure of productivity within agriculture by regions should be used in analyzing farm incomes.

[20] See Appendix A for statistical analysis. Almost by definition considerable intercorrelation exists among the independent variables. For example, the most rural regions are also the regions with the highest percentage of the labor force employed in the primary industries. Also the Negro population is concentrated in the more rural regions.

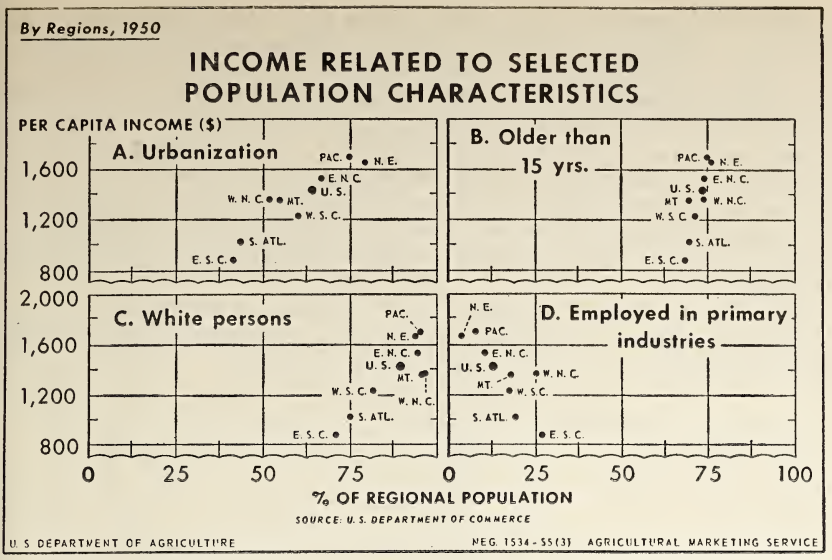

FIGURE 5.—Per capita income and characteristics of the population by regions of the United States, 1950.

Figure 5 shows how per capita income was related to four characteristics of the population by regions in 1950. Per capita income was lowest in the most rural regions (East South Central and South Atlantic) and highest in the highly urbanized regions (Northeast and Pacific). Per capita income was lowest in the regions (East South Central and South Atlantic) with the smallest percentage of the population over 15 years of age. Per capita income was highest in the regions with the largest percentage of the population over 15 years of age. In 3 of the regions less than 90 percent of the population was classified as "white," but these were also the lowest income regions. In the regions with over 90 percent of the population white there appears to be little relationship between this factor and income. Per capita income was negatively associated with the percent of the employed persons in the primary industries (agriculture, forestry, and fisheries).

Fulmer found the following: A decrease of 10 percentage points in the percent of the labor force employed in the primary industries was associated with a $50 increase in State per capita income; an increase of 10 percentage points in the percent of the population employed was associated with $270 increase; a decrease of 10 percent in the percentage of the population that was Negro was accompanied by an increase of $23; and 1 year's increase in median years of schooling of all males 25 years of age or over was accompanied by a $56 increase (*2*).

Johnson found that the differences in family income between the South and the rest of the country are due to the high percentage of families living on farms in the South and the high percentage of nonfarm Negro families in the South compared with the rest of the country.[21]

[21] Johnson, D. Gale, "Some Effects of Region, Community Size, Color, and Occupation on Family and Individual Income." (Unpublished research). 1951.

Klarman's study based on 1935–36 data (4) supports Johnson's conclusions. Klarman found that after the effects of color and community size were removed, the median income of urban white families in the South ranked as high as that of any region of the nation. The region ranked first in median income of white families in large and middle-sized cities and village units or towns. It ranked last in median income in the small cities (table 48, appendix B). As the percentage of the population of the South living in medium to large urban centers increased and the proportion of the population Negro decreased, the average family income differences between the South and other regions decreased.

The median income of urban white families in the South was approximately 93 percent of the median income of urban white families in the United States in 1946 (table 50, appendix B). This difference can be attributed largely to the difference in community size; a larger proportion of white urban families live in the smaller urban centers in the South than in other regions. On the other hand, the median income of Negro urban families in the South was only 80 percent as high as the Nation. This is further evidence that the family income differences between the South and the rest of the Nation are due largely to community size and color (tables 49, 50, and 51, appendix B).

Further evidence of the importance of race on family income differences is the fact that median income of urban Negro families in the United States was less than 60 percent (59.4) of the median income of urban white families. The difference was even greater in the South, where the median income of urban Negro families was only 51 percent that of white urban families (table 50, appendix B). These studies indicate that regional differences in urban family income can be attributed largely to the relatively large Negro population in the South.

Considering the racial differences, the distribution of the families by income groups in the South is different from the rest of the country. Perhaps the distribution of the white urban families by income groups in the South does not differ greatly from the rest of the Nation. But the proportion of the urban population that is Negro and the distribution of the Negro population by income groups in the South apparently is different from the rest of the country (table 50, appendix B). Median incomes of urban white families in the South in 1949 were estimated to be equal to the Northeast and West and slightly below the North Central region.

Differences between the median incomes of white and Negro families in the South are apparent in all the major occupation groups except laborers (table 52, appendix B). The difference is greater in the higher paid occupations and declines as the average incomes from occupations decline. The disparity becomes greater between the South and other regions as the occupations are ranked from the highest to the lowest incomes. For example, incomes of white proprietors in the South are almost 90 percent as great as they are in the Northeast, while incomes to white laborers in the South are less than 60 percent as much as they are in the Northeast.

Generally speaking, a larger proportion of the South's labor forces is in the lower paid occupations when both white and Negro are included. Again this is further evidence that the income disparity be-

tween the South and other regions declines as certain contributing factors are considered—in this case, occupation and color.

TRENDS IN FACTORS ASSOCIATED WITH INCOME DIFFERENCES IN THE SOUTH

RURAL-URBAN DISTRIBUTION OF THE POPULATION

In 1900, the population of the South was predominantly rural, but the population of the rest of the United States was about equally divided between the rural and urban sectors of the population. Between the censuses of 1900 and 1930 both the South and non-South urbanized at a rapid rate (table 53, appendix B and fig. 6). From 1930 to 1940 the rural-urban migration reached a temporary equilibrium in the non-South while the South continued to urbanize but at a slower rate than during the previous three decades.

The trend toward urbanization in both the South and the United States was again revived from 1940 to 1950. Rural population actually decreased in the South by almost 800,000, while urban population increased more than 4 million, from 1940 to 1950. Further rural-urban migration in the South will be influenced by the general level of economic activity, industrial growth, and the rate of mechanization in agriculture.

Between 1900 and 1950, according to the census, the proportion of the population classified as urban in the South increased from 14.3 to 42.5 percent. In the non-South urban population increased from 46.9 to 69.6 percent during the same period. The South has urbanized at a faster rate since the turn of the century than the non-South. Because

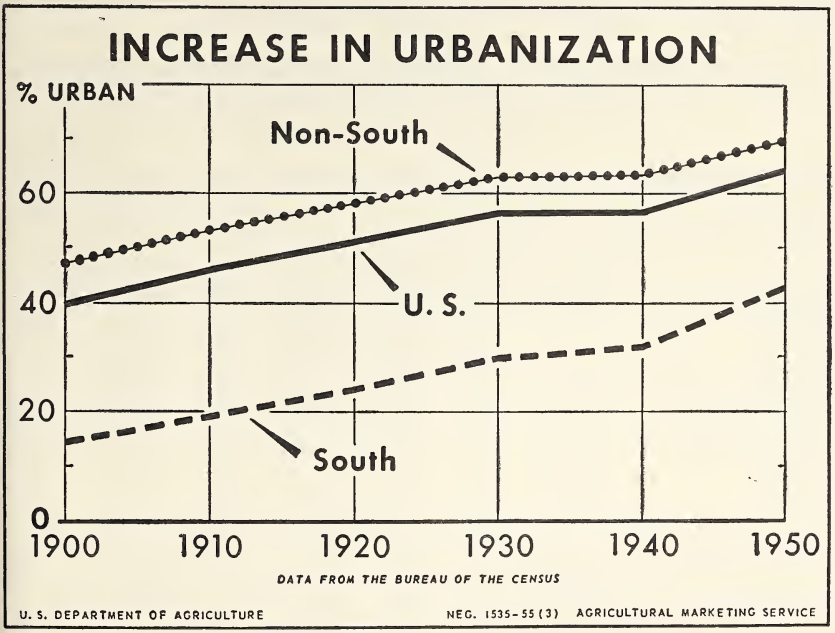

FIGURE 6.—Urbanization of the United States, South, and non-South, 1900–1950.

of its higher base rural population (1900), however, the South is expected to remain the most rural major region of the United States for several decades. As late as 1950, the South had a larger proportion of its population classified as rural than the non-South had 50 years ago.

The Southern region has gained in urbanization relative to the United States each decade since 1900 (table 17). In 1900 the proportion of the population classified as urban in the South was only 36 percent as large as the United States, but by 1950 the region was 66 percent as urbanized as the United States. The largest relative gain in urbanization in the South was from 1940 to 1950 when the region increased almost 10 percentage points relative to the Nation.

In 1950, however, only one State in the Southern region, Florida, exceeded the average of the United States in the proportion of population classified as urban (table 17). One other State, Louisiana, was more than 75 percent as urbanized as the United States. Mississippi was less than 50 percent as urbanized as the United States in 1950. In the rate of gain in urbanization relative to the United States between 1900 and 1950 Florida was also the leading State in the region, followed by Alabama and Georgia.

Consumption studies show that the average quantity of beef, veal, and lamb consumed per capita by the urban population is more than twice as great as that consumed by the rural farm population (tables 18 and 19). But with refrigeration and home freezer units becoming available to more farm people, the ratio of beef, veal, and lamb to pork consumption may change considerably in that sector of the population. Farm people generally consume more pork than all other kinds of meat combined because pork is easier to slaughter, cure, and preserve on farms without refrigeration than beef, veal, and lamb.

TABLE 17.—*Proportion of population urban, Southern region by States, relative to the United States, 1900–1950*

State and region	1900	1910	1920	1930	1940	1950	Change 1900–1950
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
Alabama	30. 0	37. 8	42. 4	50. 0	53. 5	67. 7	37. 7
Arkansas	21. 4	28. 2	32. 4	36. 6	39. 3	51. 3	29. 9
Florida	51. 1	63. 7	71. 3	92. 0	97. 5	102. 2	51. 1
Georgia	39. 3	45. 1	49. 0	54. 8	60. 8	70. 8	31. 5
Louisiana	66. 7	65. 6	68. 2	70. 6	73. 5	85. 5	18. 8
Mississippi	19. 4	25. 2	26. 2	30. 1	35. 0	43. 1	23. 7
North Carolina	24. 9	31. 5	37. 5	45. 4	48. 3	52. 3	27. 4
South Carolina	32. 2	32. 4	34. 2	37. 9	43. 4	57. 0	24. 8
Tennessee	40. 8	44. 2	51. 0	61. 0	62. 3	68. 9	28. 1
Virginia	46. 1	50. 5	57. 0	57. 7	62. 5	72. 5	26. 4
West Virginia	33. 0	40. 9	49. 2	50. 5	49. 7	54. 1	21. 1
Southern region	36. 0	41. 3	46. 3	52. 7	56. 8	66. 4	30. 4
United States	100. 0	100. 0	100. 0	100. 0	100. 0	100. 0	-------

Based on data in table 53, appendix B.

TABLE 18.—*Meat: Average quantity retail weight consumed per person per week by type of community, housekeeping families and single persons in the United States, spring 1942*

Type of community	Average quantity of meat consumed per person per week					
	All	Beef	Veal	Pork	Lamb	Other [1]
	Pounds	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*
Urban	2. 33	0. 97	0. 12	0. 78	0. 19	0. 27
Rural, nonfarm	1. 65	. 59	. 03	. 73	. 06	. 24
Rural, farm	1. 71	. 42	. 02	1. 00	. 04	. 23

[1] Includes ground meat mixtures and special meat products as tripe, tongue, kidney, and other organs where it was not known whether they were beef, veal, pork, or lamb.

Compiled from Livestock and Meat Situation (*8*), p. 15.

TABLE 19.—*Meat: Percentage distribution by type of meat; urban, rural farm, rural nonfarm housekeeping families and single persons in the United States, spring 1942*

Type of community	Percentage distribution					
	Total	Beef	Veal	Pork	Lamb	Other [1]
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
Urban	100. 0	42. 0	5. 0	33. 0	8. 0	12. 0
Rural, nonfarm	100. 0	36. 0	2. 0	44. 0	4. 0	14. 0
Rural, farm	100. 0	25. 0	1. 0	59. 0	2. 0	13. 0

[1] Includes ground meat mixtures and special meat products where it was not known whether they were beef, veal, pork, or lamb.

Compiled from Livestock and Meat Situation (*8*), p. 15.

The demand for beef, veal, and lamb relative to pork increases with increasing urbanization (*6*). This change in demand may also be influenced by refrigeration becoming available to more rural people. An increase in demand for beef, veal, and lamb relative to pork would be reflected in relatively higher prices with the same proportionate supply of each kind of meat. This reasoning also applies to all the possible combinations of supply and price.

Increasing urbanization of the population in the South, with a concurrent rise in income, influences the demand for meat in two ways. It increases the aggregate demand, as indicated by consumption studies, and it also increases the demand for beef, veal, and lamb relative to pork.

RACIAL DISTRIBUTION OF THE POPULATION

The proportion of the total population in the two major racial groups influences the consumption and demand for meat indirectly through income. The percentage of the United States population classified as nonwhite, largely Negro, has declined slightly since 1900 to about 10 percent in 1950 (table 20). The ratio of Negroes to whites

TABLE 20.—*White and colored population of the Southern region by States, the United States, and the United States excluding the Southern region*

State or area	1900			1910			1920		
	White	Colored	Percentage colored	White	Colored	Percentage colored	White	Colored	Percentage colored
	Thousands	*Thousands*	*Percent*	*Thousands*	*Thousands*	*Percent*	*Thousands*	*Thousands*	*Percent*
Alabama	1,001	828	45.3	1,229	909	42.5	1,447	901	38.4
Arkansas	945	367	28.0	1,131	443	28.2	1,280	472	27.0
Florida	297	231	43.7	444	309	41.0	638	330	34.1
Georgia	1,181	1,035	46.7	1,431	1,177	45.1	1,689	1,207	41.7
Louisiana	730	652	47.2	941	715	43.2	1,097	702	39.0
Mississippi	641	910	58.7	786	1,009	56.1	854	937	52.3
North Carolina	1,264	630	33.3	1,501	706	32.0	1,784	775	30.3
South Carolina	558	783	58.4	679	836	55.2	819	865	51.4
Tennessee	1,540	480	23.8	1,711	473	21.7	1,886	451	19.3
Virginia	1,193	661	35.7	1,390	672	32.6	1,618	691	29.9
West Virginia	915	44	4.6	1,157	64	5.3	1,377	86	5.9
Southern region	10,265	6,621	39.2	12,400	7,255	36.8	14,488	7,419	33.9
United States	66,809	9,185	12.1	81,732	10,240	11.1	94,821	10,890	10.3
United States (excluding the Southern region)	56,544	2,564	4.3	69,331	2,895	4.0	80,333	3,470	4.1

State or area	1930			1940			1950		
	White	Colored	Percentage colored	White	Colored	Percentage colored	White	Colored	Percentage colored
	Thousands	*Thousands*	*Percent*	*Thousands*	*Thousands*	*Percent*	*Thousands*	*Thousands*	*Percent*
Alabama	1, 701	945	35. 7	1, 849	984	34. 7	2, 079	982	32. 1
Arkansas	1, 375	479	25. 8	1, 466	483	24. 8	1, 482	428	22. 4
Florida	1, 035	433	29. 5	1, 381	515	27. 2	2, 166	605	21. 8
Georgia	1, 837	1, 071	36. 8	2, 038	1, 085	34. 7	2, 381	1, 064	30. 9
Louisiana	1, 323	779	37. 1	1, 512	852	36. 0	1, 797	887	33. 1
Mississippi	998	1, 012	50. 3	1, 106	1, 077	49. 3	1, 188	990	45. 5
North Carolina	2, 235	935	29. 5	2, 568	1, 004	28. 1	2, 983	1, 079	26. 6
South Carolina	944	795	45. 7	1, 084	815	42. 9	1, 293	824	38. 9
Tennessee	2, 139	478	18. 3	2, 407	509	17. 4	2, 760	531	16. 1
Virginia	1, 770	651	26. 9	2, 016	662	24. 7	2, 582	737	22. 2
West Virginia	1, 614	115	6. 6	1, 784	118	6. 2	1, 890	115	5. 7
Southern region	16, 971	7, 694	31. 2	19, 212	8, 106	29. 7	22, 601	8, 243	26. 7
United States	110, 287	12, 488	10. 2	118, 215	13, 454	10. 2	135, 215	15, 482	10. 3
United States (excluding the Southern region)	93, 333	4, 794	4. 9	99, 003	5, 348	5. 1	112, 614	7, 239	6. 0

Compiled from the 16th and 17th Censuses of the United States (*16*) and (*13*).

apparently is stabilized—at least little change has occurred since 1920. This indicates that the nonwhite sector of the population of the Nation is increasing at about the same rate as the white population.

The percentage of the population in the South classified as nonwhite is approximately 27 percent compared with only 6 percent for the non-South (1950). With slightly more than a fifth of the Nation's population, the South has two-thirds of the total Negro population. The trend in the last 50 years has been toward an increasing nonwhite population in the United States outside the South and a decreasing nonwhite population in the South relative to the total population. The out-migration of the Negro population from the South increased between 1940 and 1950.

The results of various studies and the close inverse relationship between per capita income and the percentage of the population that is Negro show that the per capita income of Negroes is considerably lower than that of whites throughout the entire country.[22] The evidence also indicates that the per capita income of Negroes in the regions that have a relatively low per capita income is considerably lower than that of whites in those regions.[23]

The Negro population in the South has declined since 1900 relative to that of the United States. However, in 1950 the region still had more than 2.5 times as large a proportion of the total population classified as Negro as the proportion for the United States (table 21).

TABLE 21.—*Proportion of population that was colored, Southern region by States, relative to the United States, 1900–1950*

State or region	1900	1910	1920	1930	1940	1950	Change, 1900–1950
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
Alabama	374. 4	382. 9	372. 8	350. 0	340. 2	311. 6	−62. 8
Arkansas	231. 4	254. 0	262. 1	252. 9	243. 1	217. 5	−13. 9
Florida	361. 2	369. 4	331. 1	289. 2	266. 7	211. 6	−149. 6
Georgia	385. 9	406. 3	404. 8	360. 8	340. 2	300. 0	−85. 9
Louisiana	390. 1	389. 2	378. 6	363. 7	352. 9	321. 4	−68. 7
Mississippi	485. 1	505. 4	507. 8	493. 1	483. 3	441. 7	−43. 4
North Carolina	275. 2	288. 3	294. 2	289. 2	275. 5	258. 2	−17. 0
South Carolina	482. 6	497. 3	499. 0	448. 0	420. 6	377. 7	−104. 9
Tennessee	196. 7	195. 5	187. 4	179. 4	170. 6	156. 3	−40. 4
Virginia	295. 0	293. 7	290. 3	263. 7	242. 1	215. 5	−79. 5
West Virginia	38. 0	47. 7	57. 3	64. 7	60. 8	55. 3	+17. 3
Southern region	324. 0	331. 5	329. 1	305. 9	291. 2	259. 2	−64. 8
United States	100. 0	100. 0	100. 0	100. 0	100. 0	100. 0	-------

Based on data in table 20.

[22] A study conducted in 1935 and 1936 shows only a slight difference in expenditures for meat between white and Negro population groups in three cities of the Southeast for comparable income classes. The expenditures for lamb, mutton, and pork were slightly higher for the Negro families and the expenditures for beef and veal slightly lower than the white families for comparable incomes. These data do not show any significant difference in the expenditures for meat by population groups that cannot be attributed to income differences.

[23] Johnson, D. Gale. (See footnote 21, p. 23.)

The proportion of the population in Mississippi that was Negro was more than 4 times, and in Alabama, Georgia, Louisiana, and South Carolina more than 3 times greater than the proportion for the United States. West Virginia was the only State in the South in which the Negro population was proportionally smaller than in the United States as a whole.

Florida and South Carolina showed the largest decline between 1900 and 1950 in the proportion of the population that was Negro, relative to the United States. Arkansas and West Virginia showed the least change in the proportion of the population that was Negro.

AGE DISTRIBUTION OF THE POPULATION

Age distribution of the population of the South varies considerably from that of the average of the Nation (table 22). In 1930, 35.0 percent of the South's population was under 15 years of age compared with 28.0 percent for the rest of the Nation (table 23). By 1940 the South's population under 15 years of age declined to 30.7 percent and that of the non-South to 23.5 percent. During the following decade (1940 to 1950), the percentage of the population in the age group under 15 increased in both the South and non-South. The census shows that 31.3 percent of the population in the South and 25.7 percent of the population in the non-South were under 15 years of age in 1950.

Although both the South and the non-South increased in the percentage of the population in this age group, the South increased less than the non-South. A large proportion of the South's population is under the age of the productive age groups, and this contributes to the low per capita income of the region.

The proportion of the population over 15 years of age is the least important of the factors associated with regional income differences.[24]

TABLE 22.—*Age distribution of the population of the South compared with the United States and non-South, 1930–50*

Region and United States	Under 15	15–64	65 and over	Not reported	Total	Median age
	Thousands	*Thousands*	*Thousands*	*Thousands*	*Thousands*	
1930						
South	8, 636	15, 035	994	15	24, 665	----
Non-South	27, 460	65, 010	5, 640	79	98, 110	----
United States	36, 096	80, 045	6, 634	94	122, 775	26. 5
1940						
South	8, 387	17, 498	1, 433	----	27, 318	----
Non-South	24, 585	72, 180	7, 586	----	104, 351	----
United States	32, 972	89, 678	9, 019	----	131, 669	29. 0
1950						
South	9, 647	19, 135	2, 063	----	30, 845	----
Non-South	30, 871	78, 699	10, 282	----	119, 852	----
United States	40, 518	97, 834	12, 345	----	150, 697	30. 1

Compiled from the 16th (*16*) and 17th (*13*) Censuses of the United States.

[24] See appendix A.

Consequently, this factor is not analyzed by States. However, the South is increasing in the proportion of the population over 15 years of age relative to the United States and the non-South (table 24).

The age distribution of a population could influence the demand for and consumption of meat on a per capita basis because of the operation of the following two factors: (1) The difference in the nutritional requirements of different age groups and (2) the influence of income. Strictly from a nutritional point of view, persons under the productive age group would require less meat in the diet than persons in the productive age group.

TABLE 23.—*Percentage distribution by age groups of the population of the South compared with the United States and non-South 1930–50*

Region and United States	Under 15	15–64	65 and over	Not reported	Total
1930	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
South	35.0	60.9	4.0	0.1	100.0
Non-South	28.0	66.3	5.7	----	100.0
United States	29.4	65.2	5.4	----	100.0
1940					
South	30.7	64.1	5.2	----	100.0
Non-South	23.5	69.2	7.3	----	100.0
United States	25.0	68.2	6.8	----	100.0
1950					
South	31.3	62.0	6.7	----	100.0
Non-South	25.7	65.7	8.6	----	100.0
United States	26.9	64.9	8.2	----	100.0

Based on data in table 22.

TABLE 24.—*Proportion of population over 15 years of age, Southern region and non-South, relative to the United States, 1930–50, and change 1930–50*

Region and United States	1930	1940	1950	Change, 1930–50
South	91.9	92.4	94.0	+2.1
Non-South	102.0	102.0	101.6	−0.4
United States	100.0	100.0	100.0	0

Based on data in table 23.

As meat is one of the more expensive foods, persons under the productive age group are at a disadvantage in satisfying their desire or preference for meat over other foods. This sector of the population depends on the family income, and the head of the family decides what food and what quantities shall be included in the diet. These factors contribute to a lower per capita meat consumption in a popu-

lation with a relatively high percentage of the population in the age groups under the productive age.

Probably the two most important factors contributing to the age distribution of the population in the South are (1) the high fertility or the high rate of reproduction and (2) the heavy migration of young adults to other regions.

"The Southeast States lead the Nation in large families and high birth rates" (*24*, p. 46). Historically, the decline in birth rates is closely associated with urbanization. An increase in urbanization in the South would likely be associated with a decline in birth rates and, consequently, a decrease in the percentage of the population in the unproductive age group. The high birth rate is associated with low per capita income.

DISTRIBUTION OF EMPLOYED WORKERS BY MAJOR INDUSTRY GROUPS

The number of persons employed in the United States rose from approximately 45.2 million in 1940 to 55.8 million in 1950, an increase of 23 percent. During the same decade, the number of persons employed in the South rose from approximately 9.0 million to 10.6 million, an increase of 18 percent (tables 54 and 56, appendix B). The sharp increase in the number of persons employed between 1940 and 1950 was the result of an increase in the size of the labor force and employment opportunities.

Agriculture, forestry, and fisheries in 1950 accounted for 22.5 percent of the employed persons in the South and 10.5 percent in the non-South (table 57, appendix B). Conversely, 26.5 percent of the employed persons in the non-South were engaged in manufacturing compared with 20.1 percent in the South. These are the two major industry groups that show the widest differences between the South and non-South. The low productivity of agricultural workers in the South and the comparatively large number of persons employed in agriculture contributes to the low per capita income in the region.

Among States within the Southern region, there is considerable variation in the percentage of the employed persons engaged in the primary industries (table 57, appendix B). Mississippi is highest with 42.5 percent of the employed persons in the primary industries. Conversely, less than 10 (9.8) percent of the employed persons in West Virginia are so engaged. Other States ranking low relative to the region, but all above the percentage for the United States (12.8), are as follows: Florida 13.3 percent, Virginia 15.1 percent, and Louisiana 18.3 percent.

North and South Carolina (27.9 percent) lead the region in the proportion of employed persons engaged in manufacturing. These are the only 2 States in the region above the national average (25.3 percent). Other States ranking high in this respect, but below the national average, are Alabama with 21.8 percent of the employed persons in manufacturing, Tennessee 21.1 percent, and Virginia 20.5 percent. Florida, Mississippi, and Louisiana rank low with less than 16.0 percent employed in manufacturing.

The decade 1940–50 marked an increasing percentage of persons engaged in manufacturing in both the South and the United States, and a decline in the percentage of persons engaged in agriculture. In the United States the proportion of employed persons engaged in manu-

facturing increased from 23.4 percent in 1940 to 25.3 percent in 1950 (tables 55 and 57, appendix B). The proportion of employed persons engaged in manufacturing in the South increased from 17.6 to 20.1 percent during the same period.

Between 1930 and 1950 the proportion of employed persons in the South engaged in the primary industries relative to the United States declined 28.3 percent (table 25). All Southern States shared in this reduction except Mississippi and Arkansas. North Carolina, Louisiana, and Alabama showed the largest relative reduction.

INDUSTRIAL DEVELOPMENT IN THE SOUTH

A region's industrialization, as to location and composition of the population, can be measured in terms of the percentage of the labor force employed in manufacturing versus agriculture, mining, forestry, and fishing. Agriculture and the other primary industries are usually associated with a dispersed population, manufacturing with a concentrated population. The importance of manufacturing in a region's economy is also indicated by the percentage of the total population classified as urban. In regions with many employed workers engaged in manufacturing, a large proportion of the labor force is also engaged in wholesale and retail trade.

This relationship can be explained partly by the high degree of specialization in a manufacturing economy. As people become urbanized and specialized they become more dependent on others to supply basic needs of life, especially food. This calls for a larger force to distribute goods and services and thus a larger number of people employed in distribution. An increase in manufacturing in the South, therefore, would probably draw more people into wholesale and retail trade to service the people employed in manufacturing.

TABLE 25.—*Proportion of employed workers engaged in the primary industries, Southern region by States, relative to the United States, 1930–50, and change 1930–50*

State and region	1930	1940	1950	Change, 1930–50
Alabama	223. 5	212. 2	192. 2	−31. 3
Arkansas	269. 6	274. 5	273. 4	+3. 8
Florida	112. 4	100. 5	103. 9	−8. 5
Georgia	199. 5	186. 7	172. 7	−26. 8
Louisiana	175. 1	176. 6	143. 0	−32. 1
Mississippi	308. 3	308. 5	332. 0	+23. 7
North Carolina	241. 9	179. 8	194. 5	−47. 4
South Carolina	233. 2	210. 6	203. 9	−29. 3
Tennessee	183. 4	176. 6	171. 1	−12. 3
Virginia	147. 5	130. 8	118. 0	−29. 7
West Virginia	99. 5	81. 4	76. 6	−22. 9
Southern region	204. 1	185. 1	175. 8	−28. 3
United States	100. 0	100. 0	100. 0	0

Compiled from the 15th Census (*12*) and 16th Census (*15*) of the United States and unpublished census data for 1950.

Construction work, although it employs a relatively small percentage of the labor force, is closely associated with the number of people employed in manufacturing. Generally an increase in construction work is associated with and precedes an increase in manufacturing. New plants have to be constructed to house the manufacturing equipment, new homes to house the workers, and new commercial or business building to service the workers. The cycle becomes almost endless, as demonstrated in the pattern of the industrialization of the United States in the twentieth century. This trend has been retarded by business depressions only to revive and gain momentum.

THE SOUTH'S INDUSTRIAL GROWTH COMPARED WITH THE UNITED STATES

As a region the South has lagged behind the Nation as a whole in industrial and commercial development. In the past, the pattern was for goods that originated as raw materials or semimanufactured goods in the South to move to other regions for further manufacturing. With this pattern of regional production and distribution a large part of the value of highly manufactured goods originating in the South was added in other regions.

Although the South is still not fully industrialized, it is gaining in industrialization relative to the Nation.

> The 1946–49 expansion of factory payrolls in the Southeast markedly exceeded the national rate, with 8 of the 11 States contributing to the region's relative gain. This accorded with the long-term upward trend of manufacturing in this area. Though the Southeast is still not relatively industrialized, its percentage share of the Nation's factory payrolls was one-third larger in 1949 than in 1929 (*21*, p. 18).

Employment in manufacturing industries in the South increased from little more than a half million to almost 2 million persons in less than half a century, 1899 to 1947 (table 58, appendix B). The increase slightly exceeded the Nation as a whole, as indicated by the number of persons in manufacturing in the South as a percent of the United States total. In 1899, 12.0 percent of the people employed in manufacturing in the United States were in the South; by 1947 the South's share had increased to 13.7 percent. Yet with more than 20 percent of the Nation's population, the South is still in a relatively unfavorable position with respect to persons employed in manufacturing.

INDUSTRIAL WAGES IN THE SOUTH COMPARED WITH THE UNITED STATES

Wages and salaries paid in southern manufacturing industries are considerably below the national average. In 1947 with 13.7 percent of the persons employed in manufacturing, the South received only 10.1 percent of the Nation's total wages and salaries paid in manufacturing industries (table 59, appendix B). However, the South has improved its relative position in this respect during the last half century. In 1899, the South had 12 percent of the persons employed in manufacturing, but these workers received only 7.5 percent of the total wages and salaries paid by the Nation's manufacturing industries. The South has improved its position in manufacturing both as to number of persons employed and average salaries and wages but is still considerably below the non-South.

The disparity of average earnings of manufacturing workers between the South and other regions declined sharply between 1937 and

1947 (table 26). For example, the average earnings for manufacturing workers in the North Central region in 1937 was 155 percent of the average in the South. But this declined to 125 percent by 1947 (roughly an increase in the relative position of workers employed in manufacturing in the South of 19 percent). The disparity between the South and other regions also declined but to a somewhat lesser extent.

TABLE 26.—*Average earnings of workers in manufacturing expressed as a percentage of earnings in the South, 1937 and 1947*

Region	1937	1947	Percentage change, 1937–47
	Percent	*Percent*	*Percent*
Northeast	134	118	−12
North Central	155	125	−19
West	146	127	−13
South	100	100	0

Compiled from Census of Manufactures, 1937 (*17*) and 1947 (*10*).

POPULATION AND THE AGGREGATE DEMAND FOR MEAT

In the long run, the aggregate demand for meat in the United States and the regional distribution of this demand are influenced by the size and rate of growth of the population. Income, tastes, preference, and consumption habits influence the per capita demand for meat; and these factors, together with population, determine the aggregate demand. Changes in size of the population may also influence per capita consumption and prices of meat. A rapidly increasing population with a high level of employment and income may, in the short run, result in rising prices and falling per capita consumption. Thus, population estimates are extremely important in anticipating the future demand for meat both in the United States and in the South.

TRENDS IN THE GROWTH OF THE POPULATION OF THE UNITED STATES

The trend in the rate of growth of the population of the United States has been generally downward since 1870 (table 27). Between 1870 and 1880 the average annual rate of increase was 3 percent. Only 20 years later (1890-1900), the average rate of increase had declined to about 2 percent. The growth rate showed a slight increase in the decade 1900–1910, but the downward trend continued during the following three decades (1910–40), reaching a low of less than 1 (0.7) percent a year in the decade 1930–40.

The decade 1940 to 1950 showed a sharp reversal of the downward trend in the rate of population growth in the United States. During this decade, the average annual rate of increase in population, 1.5 percent a year, was more than double that of the previous decade (0.7 percent). A sharp upsurge in the rate of population growth during the 1940's and early 1950's can be attributed partly to World War II

and the high level of economic activity following the war. On the other hand the sharp decline in population growth during the 1930's was attributed partly to the great depression of that decade.

The population of the United States doubled during the half century from 1900 to 1950. In 1900 the Census reported 76 million people and in 1950 approximately 152 million (table 27). The greatest absolute increase in the population occurred in the 1940's. During that period the population increased by 20 million persons. The smallest population growth recently occurred during the decade of the 1930's with an increase of less than 10 million. The consumer market in the United States, in terms of population, doubled during the last half century.

Estimates of the aggregate demand or need for meat in the future depends to a great extent on the projections of population. Past ex-

TABLE 27.—*Population of the United States 1870 to 1950, with projections to 1975*

Year	Population July 1	Percentage increase	
	Thousands	*Percent*	
1870	38, 558		
1880	50, 156	30. 1	
1890	62, 948	25. 5	
1900	76, 094	20. 9	
1910	92, 407	21. 4	
1920	106, 466	15. 2	
1930	123, 077	15. 6	
1940	132, 122	7. 3	
1950	151, 677	14. 8	
		Actual	Decade equivalent
Projections:			
Series A:			
1955	164, 782	8. 6	17. 2
1960	177, 426	7. 7	15. 4
1965	189, 916	7. 0	14. 0
1970	204, 222	7. 5	15. 0
1975	220, 982	8. 2	16. 5
Series B:			
1955	164, 782	8. 6	17. 2
1960	177, 426	7. 7	15. 4
1965	189, 916	7. 0	14. 0
1970	202, 359	6. 6	13. 2
1975	213, 568	5. 5	11. 0
Series C:			
1955	164, 644	8. 5	17. 0
1960	176, 126	7. 0	14. 0
1965	186, 146	5. 7	11. 4
1970	196, 269	5. 4	10. 8
1975	206, 615	5. 3	10. 6
Series D:			
1955	164, 403	8. 4	16. 8
1960	173, 847	5. 7	11. 4
1965	180, 927	4. 1	8. 2
1970	189, 110	4. 5	9. 0
1975	198, 632	5. 0	10. 0

Compiled from Current Population Reports (*11*).

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perience indicates that population projections are subject to considerable error. Normally population projections have to be revised as the projected date is approached. Subsequently, estimates of future demand based on population projections also have to be revised.

In spite of these limitations, long-range planning is necessary and desirable. But long-range planning should be done with as much flexibility as possible in order to permit short-run adjustments. The best that can be said for projections in view of present techniques is that they serve as guideposts, but they should be used cautiously. Population specialists are best qualified through training and experience to make estimates of the future size and compositions of the population.

To estimate the demand for meat in the United States, the recent population projections of the Bureau of the Census are used. In these projections, 4 sets of assumptions are used, resulting in 1 low, 2 medium, and 1 high series to the base years of 1955, 1960, and 1975. The major emphasis of this investigation is directed toward the long-range projections.

Under the low assumptions, population of the United States is projected to approximately 199 million by 1975. The low series indicates a declining rate of growth reaching an equilibrium before the end of the century. Under the medium assumptions, population is projected to approximately 210 million by 1975. These series are in line with the trend of the last half century. Under the high assumptions, population of the United States would reach 221 million by 1975. These 4 series represent a rather wide range and, to be useful in long-range planning, 1 of the 4 series should be accepted as most likely to occur.

TRENDS IN THE GROWTH OF THE POPULATION IN THE SOUTH COMPARED WITH THE UNITED STATES

Some regions are increasing in population at a faster rate than other regions. Assuming other factors to remain constant, these regions would show the most rapid growth in the demand for consumer goods, items such as food and clothing. Consequently, the population growth in the South relative to the national average assumes major importance in estimating the future market for meat and livestock in the region.

The proportion of the United States population living in the South has not changed substantially since the turn of the century (tables 28 and 29 and fig. 7). There was a slight decrease during the first 30 years of the present century in the proportion of the United States population living in the South, but the trend changed between 1930 and 1940. The 1950 census estimates show that the South about maintained its share of the United States population the last decade (0.2 percent decline). During the last half century the proportion of the United States population living in the South declined from 22.2 percent in 1900 to 20.1 percent in 1930.

Since 1930 the South has maintained the same rate of population growth as the national average. But the net rate of growth of the population in the South was more stable during the last half century than the rate of growth in the non-South (fig. 8). The natural rate

TABLE 28.—*Population of the Southern region by States, the United States, and the United States excluding the Southern region, 1900–1950*

State or area	1900	1910	1920	1930	1940	1950
	Thousands	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
Alabama	1, 829	2, 138	2, 348	2, 646	2, 833	3, 062
Arkansas	1, 312	1, 574	1, 752	1, 854	1, 949	1, 910
Florida	529	753	968	1, 468	1, 897	2, 771
Georgia	2, 216	2, 609	2, 896	2, 909	3, 124	3, 445
Louisiana	1, 381	1, 656	1, 799	2, 101	2, 364	2, 684
Mississippi	1, 551	1, 797	1, 791	2, 010	2, 184	2, 179
North Carolina	1, 894	2, 206	2, 559	3, 170	3, 572	4, 062
South Carolina	1, 340	1, 515	1, 684	1, 739	1, 900	2, 117
Tennessee	2, 021	2, 185	2, 338	2, 617	2, 916	3, 292
Virginia	1, 854	2, 062	2, 309	2, 422	2, 678	3, 319
West Virginia	959	1, 221	1, 464	1, 729	1, 902	2, 006
Southern region	16, 886	19, 717	21, 907	24, 665	27, 318	30, 844
United States	75, 995	91, 972	105, 710	122, 775	131, 669	150, 697
U. S. (excluding the Southern region)	59, 109	72, 255	83, 803	98, 110	104, 351	119, 853
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
Southern region as percentage of United States	22. 2	21. 4	20. 7	20. 1	20. 7	20. 5

Compiled from the 16th Census of the United States (*14*) and 17th Census of the United States, Preliminary Series 1951 (*13*).

TABLE 29.—*Population changes of the Southern region, the United States, and the United States excluding the Southern region, 1900–1950*

State or area	Change, 1900–1910		Change, 1910–20		Change, 1920–30		Change, 1930–40		Change, 1940–50		Change 1900–1950
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Percentage
	Thousand	*Percent*	*Thousand*	*Percent*	*Thousand*	*Percent*	*Thousand*	*Percent*	*Thousand*	*Percent*	*Percent*
Alabama	309	16. 9	210	9. 8	298	12. 7	187	7. 1	229	8. 1	67. 4
Arkansas	262	20. 0	178	11. 3	102	5. 8	95	5. 1	−40	−2. 0	45. 6
Florida	224	42. 4	216	28. 7	500	51. 6	429	29. 2	874	46. 1	423. 8
Georgia	393	17. 7	287	11. 0	13	0. 4	215	7. 4	321	10. 3	55. 5
Louisiana	275	19. 9	142	8. 6	303	16. 9	262	12. 5	320	13. 5	94. 3
Mississippi	246	15. 8	−6	−. 4	219	12. 2	174	8. 7	−5	−. 2	40. 5
North Carolina	312	16. 5	353	16. 0	611	23. 9	401	12. 7	490	13. 7	114. 5
South Carolina	175	13. 1	168	11. 1	55	3. 3	161	9. 3	217	11. 4	58. 0
Tennessee	164	8. 1	153	7. 0	279	11. 9	299	11. 4	376	12. 9	59. 8
Virginia	208	11. 2	248	12. 0	113	4. 9	256	10. 6	641	23. 9	78. 6
West Virginia	262	27. 4	243	19. 9	266	18. 1	173	10. 0	104	5. 4	109. 2
Southern region	2, 830	16. 8	2, 192	11. 1	2, 759	12. 6	2, 653	10. 3	3, 526	12. 9	82. 7
United States	15, 978	21. 0	13, 738	14. 9	17, 064	16. 1	8, 894	7. 2	19, 028	14. 4	98. 3
United States (excluding the Southern region)	13, 146	22. 2	11, 548	16. 0	14, 306	17. 1	6, 342	6. 5	15, 502	14. 8	102. 8

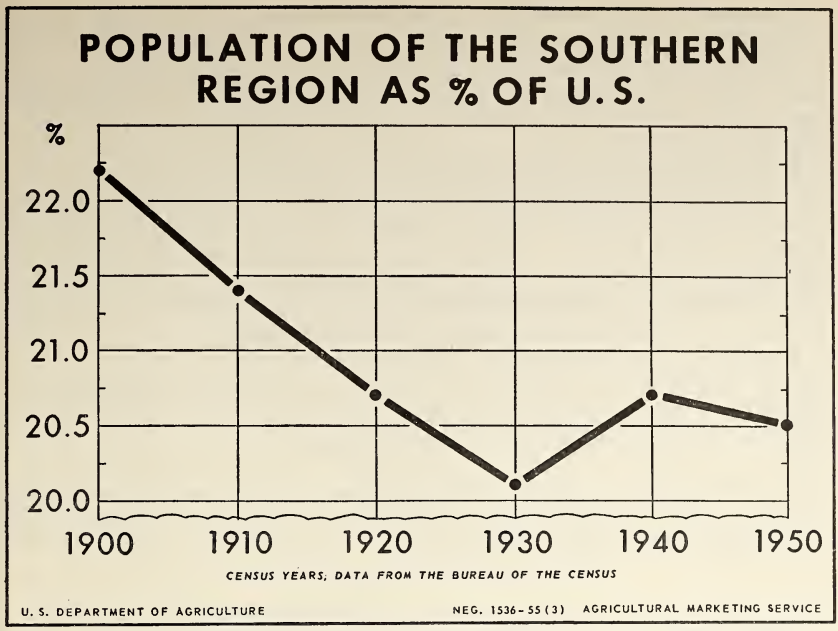

FIGURE 7.—Population of the Southern Region as a percentage of the United States population by census years, 1900–1950.

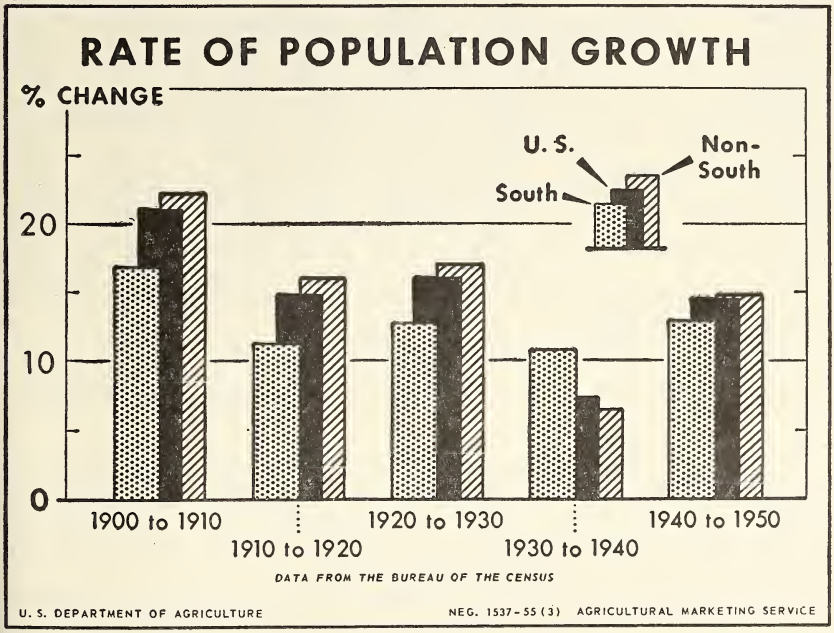

FIGURE 8.—Rate of change in the population of the United States, the Southern region and the non-South, by decades, 1900–1950.

of increase in the population of the South may have declined during the 1930–40 decade, as it did in the country as a whole, but the trend in migration from the South during the decade declined at a much faster rate. Consequently, the rate of change in the net population for the 1930–40 decade did not drop in the South to the extent that it did in the non-South.

The variation among Southern States in the rate of change in population appears to be increasing with each decade (table 30). During the last census decade (1940–50), Mississippi and Arkansas showed a decline in population. Florida had the highest rate of increase in population in the region, 1940–50 (46 percent), followed by Virginia (24 percent), and North Carolina (14 percent). Florida and Virginia were the only States in the region above the national rate of increase in population the last decade. The South Atlantic States (Virginia, North Carolina, South Carolina, Georgia, and Florida combined) increased at a faster rate than the United States average (1940–50), but this was not the case for the balance of the region.

TABLE 30.—*Rate of change in population of the Southern region by States, the United States, and the United States excluding the Southern region, 1900–1950*

State or area	Percentage change					
	1900–1910	1910–20	1920–30	1930–40	1940–50	1900–1950
Alabama	16. 9	9. 8	12. 7	7. 1	8. 1	67. 4
Arkansas	20. 0	11. 3	5. 8	5. 1	—2. 0	45. 6
Florida	42. 3	28. 6	51. 6	29. 2	46. 1	423. 8
Georgia	17. 7	11. 0	0. 4	7. 4	10. 3	55. 5
Louisiana	19. 9	8. 6	16. 8	12. 5	13. 5	94. 3
Mississippi	15. 9	—0. 4	12. 2	8. 7	—0. 2	40. 5
North Carolina	16. 5	16. 0	23. 9	12. 7	13. 7	114. 5
South Carolina	13. 1	11. 1	3. 3	9. 3	11. 4	58. 0
Tennessee	8. 1	7. 0	11. 9	11. 4	12. 9	62. 9
Virginia	11. 2	12. 0	4. 9	10. 6	23. 9	79. 0
West Virginia	27. 3	19. 9	18. 1	10. 0	5. 4	109. 2
Southern region	16. 8	11. 1	12. 6	10. 7	12. 9	82. 7
United States	21. 0	14. 9	16. 1	7. 2	14. 4	98. 3
United States (excluding the Southern region)	22. 2	16. 0	17. 1	6. 4	14. 8	102. 8

Based on data in table 28.

Population shifts within the South between 1940 and 1950 may have been largely a result of the location of new industries. It remains to be seen whether the influence of World War II and the Korean conflict on the location of the population, both in the South and the United States, was temporary or permanent.

The variation among Southern States in rate of increase in population during the last half century has been rather large (table 30). The population of Florida more than quadrupled (increased 424 percent) during the half century (1900–1950). This rate was more than

4 times the rate of increase in population for the United States as a whole. Two other States in the region, North Carolina (114 percent increase) and West Virginia (109 percent increase) had a rate of growth above the United States average for the half century.

At the other extreme, Arkansas and Mississippi increased in population at less than half the average for the Nation. The rate of population increase in Virginia and Louisiana was between 75 and 100 percent of the United States average. The remaining States had increases of between 50 and 75 percent of the average of the Nation for the period 1900–1950.

DEMAND AND PROSPECTIVE DEMAND FOR MEAT AND LIVESTOCK IN THE UNITED STATES

Previous demand studies have dealt largely with the national demand. Many of the factors used in analyzing the national demand for meat and livestock can also be used in analyzing the demand for a particular region. It is within this framework of the national picture that the demand for meat and livestock in the South is studied.

CHANGES IN THE DEMAND FOR MEAT IN THE UNITED STATES AS MEASURED BY EXPENDITURES

The demand [25] for meat in the United States increased from an index of 98 in 1935 to an index of 160 in 1947, representing an increase

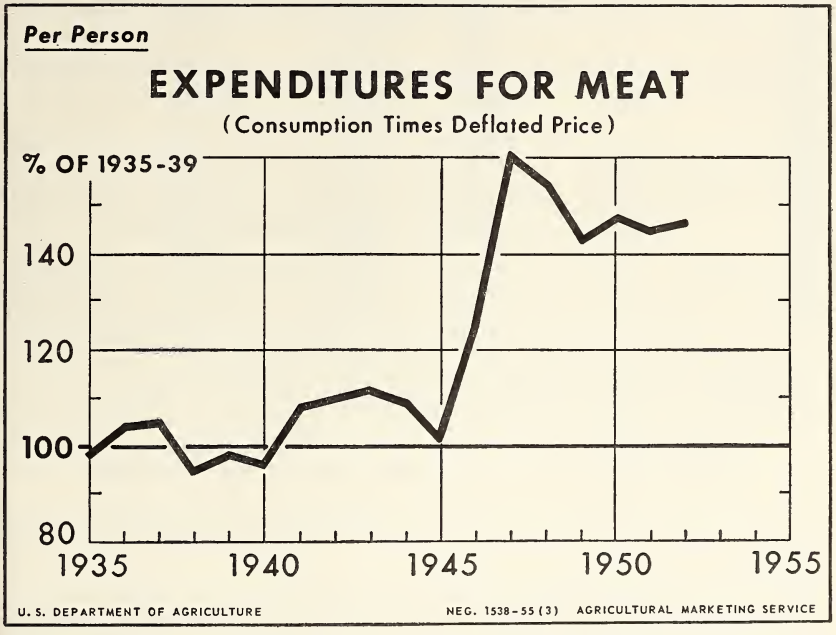

FIGURE 9.—Index numbers of demand as measured by expenditures (consumption times deflated price) for meat, United States, 1935–53.

[25] Changes in the per capita demand for meat during a period of time are indicated by changes in expenditures. In this particular analysis changes in the

of approximately 63 percent (table 31 and fig. 9). The increase in the demand for meat has not been consistent during the 15-year period 1935 through 1949, but it has been generally upward. The decline in expenditures for meat during World War II is attributed to price controls rather than declining demand. The demand for meat increased sharply during the postwar period, 1945 to 1947, inclusive, but leveled off from the 1947 peak during the following years.

Production of meat and livestock responds to the aggregate demand as reflected in price changes. The rising aggregate demand for meat, as indicated by prices and consumption, following World War II is attributed to both an increasing per capita demand and an increasing population.

TABLE 31.—*Change in per capita demand as measured by index of deflated expenditures for meat at retail, United States, 1935–53*

Year	Per capita meat consumption [1]	Average retail price of meat per pound [1]	Index of deflated meat prices [1 2]	Index of deflated expenditures for meat per person (1935–39=100) [3]
	Pounds	*Cents*		
1935	116	28. 9	106	98
1936	129	27. 8	101	104
1937	125	30. 0	105	105
1938	125	26. 5	94	95
1939	132	25. 6	93	98
1940	140	23. 8	85	96
1941	142	27. 9	95	108
1942	138	32. 4	100	110
1943	145	33. 2	96	112
1944	152	31. 4	90	109
1945	143	31. 4	88	101
1946	152	40. 0	103	125
1947	153	57. 8	130	160
1948	144	64. 8	136	156
1949	143	58. 7	124	142
1950	143	61. 6	129	147
1951	136	68. 6	133	146
1952	144	67. 7	128	149
1953	154	62. 6	118	144

[1] Compiled from Livestock and Meat Situation (*7*), p. 27 and 39.
[2] Deflated by consumer's price index (1935–39=100).
[3] Consumption per person times the deflated price on the index (1935–39=100).

EXPENDITURES FOR MEAT AND DISPOSABLE INCOME

Retail value of meat consumed as a percentage of disposable income shows a slight decline since 1910 (*5*).[26] It did not fall much below

price level are removed by deflating the price of meat by the consumer's price index. The resulting price index times consumption shows expenditures for meat in terms of constant value dollars. As an index of demand the average expenditures for the period (1935–39=100) is used as a base.

[26] A decreasing percentage of disposable income spent for meat over a period of time does not necessarily indicate a declining demand for meat. As more goods and services are produced, real income rises and the percentage of disposable in-

6 percent until 1923 (table 32). But it has exceeded 6 percent in only 8 years since 1923. During World War II consumers spent less than 5 percent of their disposable income for meat.

PRICES RECEIVED FOR LIVESTOCK AND PER CAPITA DISPOSABLE INCOME

Prices of livestock closely follow the trend in per capita disposable income (table 33 and fig. 10).[27] Certain other factors, including sup-

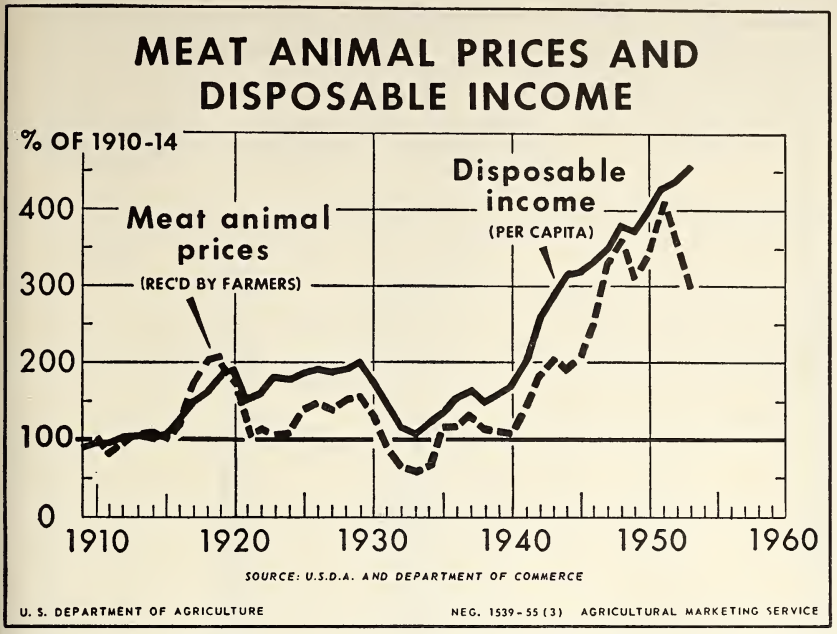

FIGURE 10.—Relationship of the indices of per capita disposable income and prices received for meat animals, United States, 1910–53.

come spent for necessities (food, clothing, and shelter) declines. The volume of goods and services in other sectors of the economy have increased as resources were shifted from agricultural production to nonagricultural production. Therefore, the percentage of the disposable income spent for meat is not always a reliable guide to the economic conditions of the livestock and meat industry. As an illustration, consumers spent a larger percentage of their disposable income for meat in 1934 than in 1948 for approximately the same per capita quantity. Retail value of meat consumed as a percentage of disposable income was 6.4 in 1934 and 6.3 in 1948 (table 32), the per capita consumption was 143.1 pounds in 1934 and 144.0 pounds in 1948. Conversely, prices paid for livestock and meat relative to other prices, either farm or nonfarm, were more favorable to producers in 1948 than in 1934. Almost any other measure of demand would indicate a stronger demand for meat in 1948 than in 1934.

Several other factors should be considered when using percentage of disposable income spent for meat as an indication of demand. On a relative basis, agriculture's contribution to the gross national product is least (adjusting for the long-run downward trend) during periods of full employment and high levels of productivity. With the swing of the business cycle, agricultural output does not rise and fall as rapidly as industrial output. In estimating the strength of demand, the size of the disposable income is equally as important as the percentage of it spent for meat.

[27] About 91 percent (r^2=.91) of the changes was associated with changes in per capita income.

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ply, imports, and exports, may have much influence on livestock prices for individual years. But these are less important than disposable per capita income in explaining the variation in livestock prices over a long time. Supply, however, becomes a more important factor when considering weekly or monthly price variations.

The composite index (1910–14=100) of prices received by farmers for meat animals varied widely during the last two decades. The index of 409 reached in 1951 was almost 7 times the low index of 59 in

TABLE 32.—*Retail value of meat consumed per person, and disposable income per person, in the United States, 1919–53*

Year	Retail value of meat consumed per person [1]	Disposable income per person [2]	Retail value of meat consumed as a percentage of disposable income
	Dollars	*Dollars*	*Percent*
1919	42.00	618	6.8
1920	40.80	641	6.4
1921	33.10	497	6.7
1922	32.50	530	6.1
1923	34.40	604	5.7
1924	34.80	597	5.8
1925	37.30	622	6.0
1926	38.50	637	6.0
1927	37.20	630	5.9
1928	37.40	639	5.9
1929	38.70	668	5.8
1930	35.80	590	6.1
1931	29.80	501	5.9
1932	22.00	378	5.8
1933	20.20	355	5.7
1934	26.00	403	6.4
1935	28.80	449	6.4
1936	30.90	509	6.1
1937	32.40	544	5.9
1938	28.80	497	5.8
1939	29.30	529	5.5
1940	29.10	565	5.2
1941	34.20	680	5.0
1942 [3]	38.90	854	4.6
1943 [3]	42.10	956	4.4
1944 [3]	41.90	1,047	4.0
1945 [3]	39.10	1,065	3.7
1946 [3]	53.00	1,108	4.8
1947	76.50	1,160	6.6
1948	80.40	1,267	6.3
1949	72.50	1,238	5.9
1950	75.90	1,338	5.7
1951	81.00	1,438	5.6
1952	84.50	1,476	5.7
1953	82.60	1,531	5.4

[1] Consumption of different types of meat converted to retail weight and multiplied by retail price to obtain retail value.

[2] Computed from income data of the U. S. Department of Commerce, 1929–53. Estimates 1919–28 by Bureau of Agricultural Economics.

[3] Relationships in war years were greatly affected by price control and other circumstances. Data were included in order to provide a continuous series.

Compiled from Livestock and Meat Situation (7, p. 39).

1933 (table 33 and fig. 10). During this same period the variation in per capita income ranged from an index (1910–14=100) of 106 in 1933 to 456 in 1953, or 4 times the low index.[28]

The index of prices received by farmers relative to the index of per capita income since 1929 is shown in table 34. On the 1910–14 base, the index of prices received for meat animals was 77 percent of the index of per capita disposable income in 1929. The ratio fell to around 56 during the depression years of 1932, 1933, and 1934 but advanced sharply to 85 in 1935. Prices received for meat animals relative to disposable income rose after World War II and reached a ratio of approximately 96 in 1951. However, the ratio of the index of prices received for meat animals relative to disposable income has not reached 100 since 1920. Except for the war periods, prices received for meat animals relative to per capita disposable income are apparently declining.

TABLE 33.—*Index of per capita disposable incomes and index of prices received by farmers for meat animals (1910–14=100), United States, 1909–53*

Year	Index per capita income [1]	Index of prices received by farmers for meat animals [2]	Year	Index per capita income [1]	Index of prices received by farmers for meat animals [2]
1909	92	----------	1932	113	63
1910	96	101	1933	106	59
1911	96	84	1934	121	68
1912	101	96	1935	135	115
1913	105	108	1936	152	118
1914	102	111	1937	163	130
1915	108	102	1938	149	113
1916	125	121	1939	159	110
1917	148	176	1940	170	108
1918	163	202	1941	204	143
1919	185	207	1942	257	186
1920	192	171	1943	287	203
1921	150	106	1944	315	190
1922	159	113	1945	320	207
1923	180	105	1946	333	248
1924	179	109	1947	348	329
1925	187	139	1948	380	361
1926	191	146	1949	372	311
1927	189	138	1950	[3] 398	340
1928	192	150	1951	[3] 428	409
1929	200	155	1952	[3] 439	353
1930	177	133	1953	[3] 456	298
1931	150	91			

[1] Compiled from Consumption of Food in the United States (*18*).
[2] Compiled from Livestock and Meat Situation (*7*), p. 32.
[3] Compiled from Survey of Current Business (*22*), p. 13.

[28] The variation in prices received by farmers for meat animals was much greater than the variation in per capita disposable income, indicating that prices of livestock are relatively higher in years when prices and incomes are high. In 1951 consumers paid the highest prices for meat at the farm level in relation to their income of any year during the past two decades (table 33). The relationship between the prices paid for meat animals at the farm level and per capita disposable income varied considerably during the last two decades, but the relationship in 1949 was about the same as it was in 1929.

TABLE 34.—*Index of prices received by farmers as a percentage of the index of per capita disposable income (1910–14=100) United States, 1929–53*

Year	Index per capita income [1]	Index of prices received by farmers for meat animals as a percentage of the index of per capita disposable income [2]	Year	Index per capita income [1]	Index of prices received by farmers for meat animals as a percentage of the index of per capita disposable income [2]
1929	200	77. 5	1942	257	72. 4
1930	177	75. 1	1943	287	70. 7
1931	150	60. 7	1944	320	60. 3
1932	113	55. 7	1945	317	64. 7
1933	106	55. 7	1946	333	74. 5
1934	121	56. 2	1947	348	94. 5
1935	135	85. 2	1948	380	95. 0
1936	153	77. 1	1949	372	83. 6
1937	163	79. 8	1950	[3] 398	85. 4
1938	149	75. 8	1951	[3] 428	95. 6
1939	159	69. 2	1952	[3] 439	80. 4
1940	170	63. 5	1953	[3] 456	65. 4
1941	204	70. 1			

[1] Compiled from Consumption of Food in the United States (*18*).
[2] Computed.
[3] Compiled from Livestock and Meat Situation (*7*).

Prices farmers receive for livestock depend largely on per capita disposable income in the long run.[29] The trend in per capita disposable income was upward from 1938 to 1948. Per capita disposable income was lower in 1949 than that of the previous year for the first time in more than a decade. The decline in both income and meat animal prices in 1949 were short lived. The trend was again upward in 1950, possibly due to the Korean conflict.

ELASTICITY OF THE DEMAND FOR MEAT

INCOME ELASTICITY OF THE DEMAND FOR MEAT

Income elasticity of demand is defined as the percentage change in consumption associated with a 1-percent change in per capita income. A rise in meat consumption of 0.5 to 0.7 percent was associated with a

[29] Calculated from the time series data, 1929–49, the derived equation for the index of meat animal prices given the index of per capita disposable income is:

$Y=-32.9+.90X$ ($r^2=.91$)

where X=index of per capita disposable income (1910–14=100)
Y=index of prices received by farmers for meat animals (1910–14=100)

But measuring this relationship does not simplify the problem. Per capita disposable income cannot be accurately projected, and there is the variation between the indices of per capita disposable income and prices received by farmers for meat animals. Several other factors including the supply of meat, Government controls, and imports and exports play a role in the prices farmers receive for meat animals.

rise of 1 percent in income, 1922–41.[30] An income elasticity of demand less than unity means that consumption rises less than income. This relationship follows the principle that food consumption increases at a slower rate than income.

Changes in expenditures for meat which are not deflated for price changes are more responsive to changes in income than are changes in consumption. Some studies of time series data indicate an elasticity of expenditures for meat around 0.8 to 0.9 or an 0.8 to 0.9 percent rise in expenditures for meat is associated with a 1-percent rise in income. However, when prices of meat are deflated and the effect of the price level is shown separately, the elasticity of meat expenditure is considerably less than 0.8.[31] On the basis of the indicated income elasticity of expenditures for meat, the percentage of the disposable income spent for meat declines as real income rises. This relationship partly explains the downward trend in the percentage of the disposable income spent for meat since 1910 as discussed previously. On the basis of this relationship, expenditures for meat are not expected to increase in direct proportion to the rise in income.

PRICE ELASTICITY OF THE DEMAND FOR MEAT[32]

Price elasticity of demand is defined as the percentage change in consumption associated with a 1-percent change in price. Karl A. Fox found that demand elasticities for several meats range from approximately −0.8 to −0.9 (pork −0.81, beef −0.79, and lamb −0.91) based on 1922–41 time series data (*1*, pp. 65–81).[33] Fox points out that since price ceilings and other controls cut across these relationships during World War II and postwar years, data for that period were not used in the analysis.

MEAT CONSUMPTION AND LEVELS OF INCOME

Food consumption surveys indicate that families with higher incomes consume more meat than do those with lower incomes (table 35). Differences in expenditures for meat between higher and lower income families are even greater than differences in consumption. Higher income families consume more expensive cuts and kinds of meats as well as a greater quantity. However, meat consumption and expenditures for meat increase at a slower rate than the increase in income. Both the income elasticities of consumption and expenditures are greater among lower income families.

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[30] See Daly, Rex F, footnote 3, p. 1.

[31] Ibid. p. 325.

[32] $\frac{\text{Percentage change in quantity}}{\text{One percent change in price}} = \text{Price elasticity of demand}$

[33] Time series data can be used only to measure price elasticity of demand for meat over time and over a range of discrete quantities. This type of analysis can only measure elasticity of demand assuming one demand curve for a number of years. If the true demand curves for meat were known, the price elasticity of demand would undoubtedly vary over the range of the demand curve. Over a series of years several different demand curves are more probable than a smooth demand curve. A considerable range in the elasticities may occur over a period of years.

Per capita consumption [34] of meat is projected for 1975 to a level about 16 percent above the 1951–53 average. This appraisal assumes 1951–53 average price relationships and an increase of more than 60 percent in real income per person (table 36).[35] The proportion of the kinds of meat (beef, veal, pork, lamb and mutton) making up the total is expected to change slightly during the next two decades with beef increasing relative to the other meats.

Given the per capita demand for meat in the United States, aggregate demand is then a function of population. A rather wide range in the projections of population of the United States results in a wide range in the estimated aggregate demand for meat. According to census projections, the population of the United States is projected to be between approximately 199 and 221 million by 1975, depending on the assumptions made (*11*).

On the basis of these population projections, the projected aggregate demand for meat in the United States is shown in table 36. The projected aggregate demand for meat in the United States for 1975 ranges

TABLE 35.—*Per capita meat consumption, expenditures for meat, and family income class of urban families in the United States, spring 1948 (weekly data converted to an annual basis)*

Family income class [1] (1947 income after Federal income tax)	Per capita meat consumption	Per capita expenditures for meat
	Dollars	*Pounds*	*Dollars*
All	123. 8	83. 46
Under 1,000	100. 6	55. 59
1,000–1,999	107. 2	67. 96
2,000–2,999	115. 9	76. 39
3,000–3,999	129. 7	86. 11
4,000–4,999	131. 9	90. 90
5,000–7,499	136. 3	96. 30
7,500 and over	137. 9	104. 62

[1] Average size of family is 3.42 persons.

Compiled from U. S. Bureau of Human Nutrition and Home Economics Food Consumption of Urban Families in the United States, Spring 1948. Preliminary Rept. No. 5, 1949.

[34] Consumption is analogous to demand assuming prices remain constant as consumption increases.

[35] Daly, Rex F., Preliminary Projections of the Long-Run Demand for Farm Products, a progress report, Agricultural Marketing Service. [Unpublished.] The crucial factor in Daly's projection of per capita meat consumption is a substantial rise in personal disposable income. In the short run, changes in the level of income will first be reflected in prices of meat because the supply of meat is relatively fixed. In the long run, production responds to price, causing changes in the supply and, subsequently, changes in the per capita consumption of meat and the different kinds of meat. But allocation of resources in response to changing prices occurs rather slowly between production of livestock and that of other segments of agriculture, as well as within the livestock industry itself.

from 33.4 billion to 37.1 billion pounds depending on the assumption of population (table 37).[36] These projections represent an increase of 41 to 57 percent over the consumption of 23.6 billion pound average in 1951–53.

TABLE 36.—*Meat consumption per capita (carcass weight) 1935–39, 1951–53, and projections for 1975* [1]

Item	1935–39 average	1951–53 average	Projected 1975 [2]
	Pounds	*Pounds*	*Pounds*
Beef	54. 8	64. 4	81. 0
Veal	8. 1	7. 7	8. 0
Lamb and mutton	6. 7	4. 0	4. 0
Pork (excl. lard)	55. 7	68. 4	75. 0
Total	125. 3	144. 5	168. 0

[1] The prospects for agriculture which include the projected consumption of meat were made in the framework of the overall analysis of the economy. The projections for consumption of agricultural commodities were based largely on projected growth in population and the gross national product and its component parts including real income.

Also the projections reflect trends in taste and consumption habits, trends in innovations influencing consumption, as well as the long-run effect of price and income on consumption. Imports and exports assumed at a fairly high level of trading together with per capita consumption and population growth provided the basis for projected total demand.

It is assumed that over the long run demand is the primary force in directing resource allocation through a pricing mechanism. The elasticity of supply response will influence consumption both in the short and long run. The supply response is based partly on past growth in output. Probable future growth will depend on new land resources, trends in innovation, and yields.

The major assumptions on which the demand projections were based are as follows:

1. Population will increase nearly 32 percent by 1975 from the 1951–53 average.
2. Crop acreage will expand very little except for some possible expansion in river valley developments.
3. Acreage released for food production by the decline in horse and mule numbers will soon be exhausted.
4. Real consumer income will rise about 64 percent by 1975.
5. The price level and price relationships are assumed at the 1951–53 average.
6. Many of the relationships for the 1951–53 period—dressing percentages, weights of animals, feeding rates, meal and oil output, productivity of livestock, seeding rates, etc.—were assumed for the projected period. In general, the supply response was not considered in the first approximation of the demand for farm products.

[2] Compiled from preliminary projections of the long-run demand for farm products. (See footnote 3, p. 1.)

[36] Actual consumption of meat depends on the supply available. Should supply lag behind the estimated increase in demand, consumption would be lower than shown by the estimates of demand, and relative prices would rise. Conversely, a larger supply would result in greater consumption and relatively lower prices. The per capita consumption will be influenced by the growth in population as well as the supply of meat available. But in the long run, according to Daly's analysis, demand as influenced by growth in population and income will be the major forces directing resource allocation.

LIVESTOCK PRODUCTION NECESSARY TO MEET THE PROJECTED DEMAND FOR MEAT IN THE UNITED STATES

Generally speaking, demand will direct resource allocation to provide for the output of goods and services required over the long run. Trends in meat animal prices relative to all other farm prices combined have been upward. This indicates either a lag in technological improvements in livestock production compared with most other commodities, or an increasing demand for meat relative to most other commodities.

PROSPECTIVE PRODUCTION OF BEEF RELATIVE TO DEMAND

Projected demand calls for a substantial increase in the production of beef—an expansion to 16½ to 17 billion pounds by 1975 for the high employment-medium population assumption (table 38) from approximately 10.3 billion pounds average for 1951–53. This expansion would require favorable prices for beef relative to other meat animals, or a relative decrease in production costs.

PROSPECTIVE PRODUCTION OF PORK RELATIVE TO DEMAND

Projected demand, around 15.7 billion pounds by 1975, for pork may be relatively easier to meet than the expansion in beef cattle. Hog numbers can be expanded or reduced as demand, feed supplies, and prices dictate.

TABLE 37.—*Estimated aggregate demand for meat by population projection series, United States, 1975* [1]

Item	Estimated aggregate demand			
	Series A	Series B	Series C	Series D
1975	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*
Beef	17, 899	17, 299	16, 736	16, 089
Veal	1, 768	1, 708	1, 653	1, 589
Lamb and mutton	884	854	826	795
Pork (excluding lard)	16, 574	16, 018	15, 496	14, 897
Total	37, 125	35, 879	34, 711	33, 370

[1] Computed from projected per capita demand and estimated population (table 36).

PROSPECTIVE PRODUCTION OF LAMB AND MUTTON RELATIVE TO DEMAND

The ultimate size of the sheep industry will be determined primarily by the demand for lamb and wool as well as government policy relating to prices of wool. The projected increase in the size of the sheep industry approximates a potential that assumes relatively favorable prices for lambs and wool.

Competition from beef cattle and other enterprises making a more intensive use of land resources will somewhat limit the expansion of the sheep industry. There will be an ever-increasing pressure for a

TABLE 38.—*Meat (carcass weight) supply and distribution, United States, 1935–39, 1951–53, and projections for 1975*

Item	1935–39 average	1951–53 average	Projected 1975 [1]
	Million pounds	*Million pounds*	*Million pounds*
Beef:			
Production	6, 937	10, 320	16, 620
Imports	214	360	400
Exports	53	35	50
Consumption	7, 167	10, 611	16, 970
Veal:			
Production	1, 038	1, 265	1, 676
Imports	----------	4	----------
Exports	----------	2	----------
Consumption	1, 051	1, 265	1, 676
Lamb and mutton:			
Production	870	633	828
Imports	----------	5	10
Exports	2	1	----------
Consumption	878	636	838
Pork:			
Production	7, 337	11, 043	15, 737
Imports	48	95	75
Exports	143	141	100
Consumption	7, 286	11, 055	15, 712
Total meat:			
Production	16, 182	23, 261	34, 861
Imports	262	464	485
Exports	198	179	150
Consumption	16, 382	23, 567	35, 196

[1] Compiled from preliminary projections of the long-run demand for farm products. (See footnote 3, p. 1.)

more intensive use of land resources as population increases. Sheep production is one of the most extensive types of farming. Price relationship adjustments with competing enterprises in favor of lambs and wool could cause some reallocation of resources to sheep production. Historically, sheep production has moved to the frontiers of agriculture, but further increases by this process are unlikely, as new land resources are very limited.

On the other hand, demand for wool and lamb remains strong. Synthetic fibers may partly relieve the demand pressure for wool as other meats are substituted for lamb. However, present price relationships between lamb, wool, and other commodities compared with past price relationships indicate a strong demand for these two major products of the sheep industry. There are indications that favorable price relationships are causing some reallocation of resources in favor of sheep. However, it is doubtful that sheep production will expand to any great extent in the near future.

LIVESTOCK NUMBERS RELATIVE TO THE DEMAND FOR MEAT

A considerable expansion in equally productive livestock would be required to meet the projected aggregate demand for meat in the United States. Projected demand would require cattle numbers

around 120 to 125 million head by 1975 (table 39). Beef cattle numbers are projected from 52 million head for the 1951–53 average to around 86 million head in 1975, an expansion of approximately two-thirds. Hog numbers are projected from 60 to 88 million head, an expansion of approximately 45 percent. Stock sheep are projected from 28 to 35 million head, an expansion of approximately 28 percent.

Location of the necessary expansion in production to meet the projected expansion in demand is a problem in farm management and interregional competition. Livestock marketing research people in the Southern region are especially interested in the prospective production of livestock in that region.

TABLE 39.—*Livestock: Number on farms January 1, 1936–40 average, 1951–53 average, and projections for 1975*

Item	1936–40 average	1951–53 average	Projected 1975 [1]
	Thousands	*Thousands*	*Thousands*
Cattle for milk	35, 427	35, 996	36, 097
Cattle not for milk	31, 279	51, 840	86, 393
All cattle on farms January 1	66, 706	87, 836	122, 490
Hogs	48, 352	60, 243	87, 550
Sheep and lambs:			
Stock sheep	45, 477	27, 668	35, 418
Sheep on feed	5, 823	3, 860	4, 940

[1] Compiled from preliminary projections of the long-run demand for farm products. (See footnote 3, p. 1.)

PROSPECTIVE DEMAND FOR MEAT AND LIVESTOCK IN THE SOUTH

The prospective demand for meat and livestock in the South is estimated within the framework of the prospective demand in the United States. On a per capita basis, the demand for meat in the South is estimated by (1) estimating expected changes in those characteristics of the population associated with income in the past, (2) estimating income on the basis of these expected changes, (3) estimating demand for meat per person on the basis of the expected income, and (4) estimating aggregate demand on the basis of the prospective size of the population in the South.

PROSPECTIVE PER CAPITA DEMAND FOR MEAT IN THE SOUTH

EXPECTED CHANGES IN THE CHARACTERISTICS OF THE POPULATION IN THE SOUTH ASSOCIATED WITH INCOME

Prospective Rural-Urban Distribution of the Population

The South will continue to urbanize at a faster rate than the remainder of the Nation if the trend since 1900 continues. In 1900 the South was 36.0 percent as urbanized as the United States.[37] By 1950 the

[37] Computed by dividing the percentage of the population classified as urban (14.3) in the South by the percentage of the population classified as urban (39.7) in the United States.

South was 66.0 percent as urbanized as the United States. Urbanization and per capita income in the South since 1930 are closely related. Per capita income in the South was 48.6 percent of the United States average in 1930 and 66.6 percent in 1950 (table 46, appendix B) compared with urbanization of 52.7 percent and 66.4 percent, respectively (table 17). Should the South continue to increase in urbanization relative to the United States at the same rate as between 1930 and 1950, the region will be 83 percent as urbanized as the Nation by 1975.

Prospective Distribution of Population Groups

The trend since 1900 indicates that the Negro population will continue to decline in the South relative to the United States, indicating a rise in per capita income in the region relative to the Nation. The proportion of the population classified as nonwhite in the South declined from 39.2 percent in 1900 to 26.7 percent in 1950. This is a decline of 12.5 percentage points. On the other hand, the nonwhite population of the United States as a proportion of the total population declined by only 1.8 percentage points during the same period.

At this rate, the proportion of the population in the South that is colored will decline to about 20.0 percent of the total population by 1975. No further significant decline in the proportion of the population in the United States that is colored is expected by 1975. The proportion of the population classed as white in the South is expected to be 85.9 percent as large as that of the United States by 1975.

Prospective Age Distribution of the Population

Projections of the age distribution of the population of the United States shows an increase in the proportion of the population over 45 years of age by 1960 (table 40). The South shows the same trend as the United States but still has a smaller proportion of its population in this age group than the Nation. The percentage of the population 25 to 44 years of age will decline in both the South and the Nation by 1960, because of the low birth rate during the decade 1930–40. Al-

TABLE 40.—*Percentage distribution of the population of the United States and the South, by age, July 1, 1950, and medium projections July 1, 1955 and 1960*

Age and area	1950	1955	1960
	Percent	*Percent*	*Percent*
United States	100. 0	100. 0	100. 0
Under 15 years	27. 6	28. 6	27. 4
15 to 24 years	14. 7	13. 7	15. 0
25 to 44 years	29. 5	28. 6	27. 3
45 to 64 years	20. 6	20. 7	21. 2
65 years and over	7. 6	8. 4	9. 1
The South [1]	100. 0	100. 0	100. 0
Under 15 years	31. 2	32. 0	30. 3
15 to 24 years	15. 9	14. 6	16. 0
25 to 44 years	28. 7	28. 0	26. 7
45 to 64 years	17. 9	18. 3	19. 1
65 years and over	6. 3	7. 1	7. 9

[1] Includes Maryland, Delaware, District of Columbia, Kentucky, Texas, and Oklahoma in addition to the usual States defined as the South in this study.

Compiled from Projection of the Regional Distribution of Population (3).

though the percentage of the population under 15 years of age is expected to decline slightly in the South, almost 3 percent more of the population of the region is expected to be in this age group than for the country as a whole. The birth rate in the South is expected to decline relative to the national average through the next two decades.

On the basis of past trends (1930–50), the proportion of the population over 15 years of age in the South is increasing relative to the United States. The proportion of the population in the South over 15 years of age increased from 65.0 percent in 1930 to 68.8 percent in 1950 compared with an increase of 70.6 to 72.4 percent for the United States. The proportion of the population over 15 years of age in the South is expected to be 95.0 percent as large as the national average by 1960 and 96.4 percent by 1975.

PROSPECTIVE DISTRIBUTION OF EMPLOYED WORKERS BY MAJOR INDUSTRY GROUPS

The decline in the proportion of employed workers engaged in the primary industries in the South is expected to continue but at a decreasing rate relative to the United States. Since this factor is inversely associated with per capita income, a continuation of the trend between 1940 and 1950 should coincide with a relative rise in per capita income in the South.

The proportion of employed workers engaged in the primary industries in the South declined from 34.8 in 1940 to 22.5 percent in 1950 compared with a decline of from 18.8 to 12.8 percent in the United States. The proportion of the employed persons engaged in the primary industries in the South relative to the United States declined by 9.3 percentage points between 1940 and 1950. Extrapolating this rate of change to 1960, the South is expected to have only 166.5 percent as large proportion of employed persons engaged in the primary industries as the average of the United States and 152.6 percent by 1975.

PROSPECTIVE PER CAPITA INCOME IN THE SOUTH RELATIVE TO THE UNITED STATES

Demand for meat in the United States and the South on a per capita basis depends largely on real per capita income. In estimating the per capita demand for meat in the South, the United States per capita income and anticipated demand for meat is used as a benchmark.[38]

There are 4 possible conditions that could occur over the next two decades that would influence the prospective demand for meat in the Nation and in the South on a per capita basis:

(1) Per capita real income in the United States will continue to increase with per capita income in the South rising relative to the national average.

(2) Per capita real income in the United States will continue to increase with per capita income in the South relative to the national average declining.

(3) Per capita real income in the United States will decline with per capita income rising in the South relative to the national average.

(4) Per capita real income in the United States will decline with per capita income in the South declining relative to the national average.

[38] The analysis is relevant only for estimating the demand for meat in the South within the framework of the United States demand presented in the preceding chapter.

Time will prove 1 of these hypotheses to be true, the other 3 being false unless the country and the region maintain their present positions. However, in anticipating a potential market for meat and livestock in the South on a per capita basis, past trends provide the basis for projections with due consideration for present and foreseeable economic conditions and characteristics of the population associated with income.

From 1909 to 1949, per capita real disposable income fluctuated rather widely with an overall upward trend (fig. 11). The upward trend was extremely modest from 1909 to 1939. It took a sharp upsurge from 1939 to 1945. During 1909–49 there were 3 periods of an uptrend and 3 periods of a downtrend in per capita real disposable income. A general uptrend occurred from 1909 to 1917 reaching the peak in the height of the United States participation in World War I.

Following World War I, per capita real disposable income declined sharply, reaching a low point in 1921. Then came a period of rising real income that reached another peak in 1929. After 1929 real income declined sharply and reached the half-century low point in 1933. Following that, the trend was sharply upward reaching a peak in 1944 and 1945 followed by another slight decline after World War II.

The wide fluctuation in per capita real disposable income during the last 40 years makes any future projection subject to considerable error. However, in analyzing the long-run demand for farm products in the United States, it appears reasonable to assume that real consumer income will rise 64 percent from the 1951–53 level by 1975. The level of real income will be influenced by the level of employment, general economic conditions, and technological advancement.

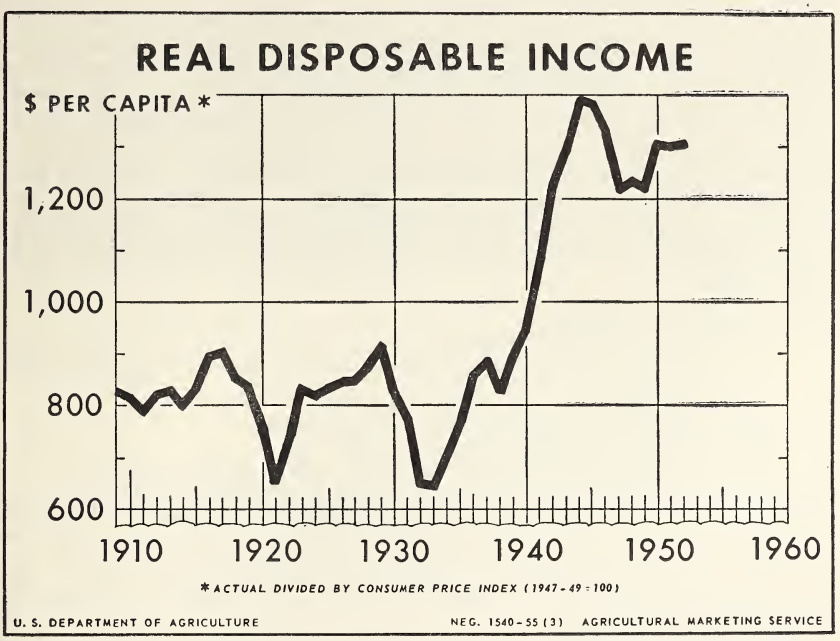

FIGURE 11.—Per capita real disposable income, United States, 1909–52.

Per capita income in the South relative to the United States as a whole has shown a definite trend during the last two decades. However, per capita income has fluctuated widely, and any computed trend line projected into the future would vary, depending on the base period used. The actual course of the trend in income in the South relative to the United States will, of course, be influenced by economic conditions that are difficult if not impossible to accurately forecast. However, per capita income in the South is estimated to be 81.5 percent of the national average by 1975.[39]

ESTIMATED PER CAPITA DEMAND FOR MEAT

The estimated per capita consumption of meat in the South has increased rather steadily since 1930 in actual terms and relative to the national average (table 41).[40] These estimates of meat consumption indicate that the increased demand for meat in the South since 1930 has been more than that attributed to the increase in population.

On the basis of three factors, per capita demand for meat in the South is projected to 155.7 pounds by 1975 under the assumption of high employment and 1951–53 prices (table 42). These factors are as follows: (1) Regional distribution of per capita meat consumption as a semilogarithmic function of per capita income, (2) the estimated level of per capita income in the South relative to the United States. and (3) Daly's projected per capita demand for meat in the United States.

For 1975, this projection is 27.9 percent above the 1950 estimated per capita demand for meat in the South. The projected increase for the South is considerably larger than the projected increase of 16.9 percent for the United States.

The projection of the demand for meat in the South on a per capita basis to 1975 is not broken down by kinds of meat produced by the different species of livestock considered in this study. Consumption of pork in the South is now high compared to the United States average and to the total per capita meat consumption in the region. Therefore, it appears that a large part of the expected increase in the demand for meat in the region will be in meats other than pork, especially beef and veal. The per capita demand for pork in the South will increase during the next two decades, but it probably will not increase as fast as the demand for beef and veal, especially if the income projections materialize.

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[39] The regression equation

$Y=a+b_1X_1+b_2X_2+b_3X_3+b_4X_4$.

Y=per capita income in the South as a percentage of the United States average.

X_1=proportion of population that is urban.

X_2=proportion of population over 15 years of age.

X_3=proportion of population that is white.

X_4=proportion of population employed in the primary industries.

is used for estimating per capita income in the South relative to the Nation in 1975 on the basis of the expected values of the independent variables. Calculated from 1950 data, $a=-91.6$, $b_1=.24$, $b_2=.95$, $b_3=.81$, $b_4=-.0715$, and estimates of the independent variables for the South relative to the United States average are: (1975) $X_1=83.0$, $X_2=90.5$, $X_3=96.4$, $X_4=152.6$ resulting in a value of 81.5 for Y which is the estimate of per capita income in the South as a percentage of the United States average.

[40] Estimated on the basis of United States consumption and the regional distribution of consumption as a function of income.

TABLE 41.—*Estimated per capita consumption of meat in the Southern region and per capita consumption of meat in the South as a percentage of the United States average, 1930–53*

Year	United States per capita meat consumption [1]	South per capita meat consumption [2]	South as a percentage of United States
	Pounds	*Pounds*	*Percent*
1930	128. 3	92. 4	72. 0
1931	129. 9	93. 9	72. 3
1932	130. 2	97. 5	74. 9
1933	135. 3	103. 9	76. 8
1934	143. 1	114. 0	79. 7
1935	116. 7	92. 7	79. 4
1936	129. 8	103. 1	79. 4
1937	125. 4	98. 3	78. 4
1938	126. 2	100. 1	79. 3
1939	132. 8	104. 9	79. 0
1940	141. 7	111. 5	78. 7
1941	142. 8	114. 4	80. 1
1942	139. 5	114. 1	81. 8
1943	146. 0	121. 2	83. 0
1944	153. 5	129. 5	84. 4
1945	144. 4	123. 6	85. 6
1946	153. 4	130. 1	84. 8
1947	155. 0	131. 7	85. 0
1948	145. 4	123. 6	85. 0
1949	143. 9	121. 7	84. 6
1950	143. 7	121. 7	84. 7
1951	135. 8	115. 7	85. 2
1952	144. 0	115. 7	80. 3
1953	154. 0	123. 1	79. 9

[1] Compiled from Livestock Market News Statistics and Related Data (*19* and *20*).

[2] Computed by formula $Y = -82.7 + 91.8$ (log X); Y converted to pounds. (See footnote 16, p. 14.)

Lamb consumption is extremely light in the South, and it appears unlikely that lamb will be widely consumed in the region. Relatively few consumers in the South have had the opportunity to develop a taste for lamb. The regional differences in lamb consumption seem to be greater than could be attributed to regional differences in income, indicating that preference and custom have more effect on regional differences in the consumption of lamb than in the consumption of the other meats.

Even if lamb consumption increases in the Southern region, it will continue to be a minor item in the meat diet of the southern people. The low per capita production or supply of lamb will likely contribute to the continued low level of per capita consumption both in the United States and in the South.

An increase in consumption of beef and veal relative to pork is indicated for the long run. Cattle numbers move up and down cyclically but can increase on a permanent basis only as feed supplies (including pasture) increase or as feed resources are reallocated within the livestock industry. As cattle numbers increase, more feed is shifted to beef production at the expense of pork production unless total feed

TABLE 42.—*Index of per capita income in the South (United States=100), per capita meat consumption in the United States and estimates for the South 1935–39 average and 1950 with projections to 1975*

Period	Per capita [1] consumption United States	Index per capita [2] income South (U. S.=100)	Estimated per capita [3] meat consumption South	Estimates for South as percentage of United States average
	Pounds		*Pounds*	
1935–39 average	125. 3	57. 9	99. 1	79. 1
1950	143. 7	67. 5	121. 7	84. 7
1975	[4] 168. 0	81. 5	155. 7	92. 7
Percentage increase, 1950–75	*Percent* 16. 9	*Percent* 20. 7	*Percent* 27. 9	*Percent* 9. 4

[1] Compiled from Livestock Market News Statistics and Related Data (*19*, p. 74).
[2] Compiled from Survey of Current Business (*22*).
[3] Computed by formula presented in the framework of Daly's projections for the United States. (See footnote 3, p. 1.)
[4] Daly, Rex F. (See footnote 3, p. 1.)

supplies are increased. The ratio of beef to pork consumption in the South over the next two decades will depend largely on the supply and relative prices of beef and pork at the national level. However, pork will probably continue to be the most important meat item in the diet of the average southern consumer for some time in the future.

ANTICIPATED AGGREGATE DEMAND FOR MEAT IN THE SOUTH RELATIVE TO THE UNITED STATES ON THE BASIS OF TRENDS IN POPULATION

Aggregate demand for meat in the United States and the South will be determined by the growth in population, assuming a per capita demand has been established. Thus, population growth is a major factor in anticipating the potential market for meat both in the United States and in the South.

The present outlook indicates an increasing population in the United States for the next quarter of a century. The rate of growth may vary considerably as well as the regional distribution. According to projections (*3*) the population of the South will increase at a rate approximately the same as the average of the United States. Thus, the South is expected to maintain the same percentage of the United States population as of the 1950 census. Estimates of population for the Southern region were computed by taking this percentage (1950 actual) of the United States projections.[41]

[41] Because of a difference in the States included in the Southern region for this study and the States included in regions for the population projections, some minor adjustments are made. Population projections in that study include the major part of the South Atlantic and East South Central regions and 2 of the 4 States in the West South Central region. The rate of increase of 2 of the 3

The South's net population is expected to remain at approximately 20.5 percent of the United States population (table 43). Although the natural increase in population is greater in the South than in other regions, the net increase in the South has been retarded by outmigration. Should the migration trend change in the near future because of the threat of atomic warfare or some other reason, it is entirely possible that the rate of increase in population in the South will be greater than that of the Nation. Should it be necessary to decentralize the

TABLE 43.—*Population and percentage of United States population in the Southern region, 1900–1950, with projections to 1975* [1]

Date	United States	Southern region [2]	Southern region as percentage of United States
	Thousands	*Thousands*	*Percent*
1900	75, 995	16, 886	22. 2
1910	91, 972	19, 717	21. 4
1920	105, 711	21, 907	20. 7
1930	122, 775	24, 666	20. 1
1940	131, 669	27, 318	20. 7
1950	150, 697	30, 844	20. 5
Projections (July 1): [3]			
Series A:			
1955	164, 782	33, 780	20. 5
1960	177, 426	36, 372	20. 5
1965	189, 916	38, 933	20. 5
1970	204, 222	41, 865	20. 5
1975	220, 982	45, 301	20. 5
Series B:			
1955	164, 782	33, 780	20. 5
1960	177, 426	36, 372	20. 5
1965	189, 916	38, 933	20. 5
1970	202, 359	41, 484	20. 5
1975	213, 568	43, 781	20. 5
Series C:			
1955	164, 644	33, 752	20. 5
1960	176, 126	36, 106	20. 5
1965	186, 146	38, 160	20. 5
1970	196, 269	40, 235	20. 5
1975	206, 615	42, 356	20. 5
Series D:			
1955	164, 403	33, 703	20. 5
1960	173, 847	35, 639	20. 5
1965	180, 927	37, 090	20. 5
1970	189, 110	38, 768	20. 5
1975	198, 632	40, 720	20. 5

[1] Compiled from Projections of Regional Distribution of the Population of the United States to 1975 (*3*).

[2] Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia.

[3] Compiled from Current Population Reports (*11*).

regions (East and West South Central) is nearly the same as the rate of increase for the United States for all series, while the South Atlantic is slightly above the United States for all 3 series. In this study Maryland, Delaware, and the District of Columbia are excluded from the South Atlantic region (as defined by Hagood and Siegel) in composing the Southern region. These two States, including the District of Columbia, would most likely increase in population at a faster rate than the remainder of the South Atlantic region.

concentrated industry of the United States as a means of defense, it is probable that the South will gain a large share of the industry and the population.

This is one of the hazards of projecting on the basis of past trends. Many factors that were nonexistent in the past could play an important part in present and future developments. Trends may suddenly change and upset the whole picture of projections. Yet, projections based on time series trends with a certain degree of refinement and limitations should be of much value in anticipating trends in the future.

The aggregate demand for meat in the South is projected to a level in 1975 between 69 and 88 percent above 1950.[42] Percentagewise this is a much larger increase in projected consumption than projections for the United States. The difference results largely from an anticipated increase in per capita consumption in the South relative to the United States. The following tabulation shows the estimated meat consumption (carcass weight basis) in the Southern region in 1950, with projections to 1975:

	Million pounds
1950 [1]	3,754
Consumption projections, 1975: [2]	
Series A	7,053
Series B	6,817
Series C	6,595
Series D	6,340

[1] Estimated by the formula ($Y=-82.7+91.8 \log X$). Index of South's per capita meat consumption as a function of income relative to the United States on a per capita basis and 1950 population.

[2] Per capita United States consumption data as projected by Rex F. Daly of the Agricultural Marketing Service, and adjusted to the South by projected income relative to the United States and per capita meat consumption (regional distribution) as a function of income.

In the final analysis, consumption of meat in the South as well as in the United States will be determined by the supply of meat available. The projections are based on the assumption that demand as it influences prices will direct resource allocations to bring forth the production. Demand in the aggregate will be influenced by population and income. Population, income, and demand projections for 1975 may have to be revised as this date is approached.[43]

Analysis of the factors and trends in the factors directly and indirectly associated with the demand for meat indicate that by 1975 a prospective market for meat and livestock in the South will be considerably larger than the market in 1950–53. Since projections based on trends are subject to considerable error, it is difficult to make an accurate statement as to the exact extent of the expansion in the market.

Conceding these limitations on the accuracy of an anticipated market, present and potential livestock producers are constantly making

[42] Projections on the basis of trends in income and factors associated with income relative to the United States, projected per capita demand for meat in the United States for high levels of employment and four population projections.

[43] Viewed from the present, the 1975 projections may appear rather optimistic to some readers especially if such readers do not accept the assumption of a high level of employment and rising real income.

production decisions on the basis of an anticipated market. The long-run picture for the livestock industry in the South is favorable. However, there may be periods of declining prices during which many producers, especially those producing on a marginal basis, will be caught in a price squeeze.

The aggregate demand for meat in the United States is expected to expand at a rate of 2 percent a year. The expansion in the aggregate demand for meat in the South is expected to be about 1 percent above the rate for the United States, or an expansion of approximately 3 percent a year. This would give some advantage to expanding livestock production in the South at a rate faster than other regions of the Nation and still maintain favorable prices. The area in which the expansion of the livestock industry should occur is a problem in production economics and interregional competition.

LITERATURE CITED

(1) Fox, Karl A.
1951. Factors affecting farm income, farm prices, and food consumption. U. S. Bur. Agr. Econ., Agr. Econ. Res. 3 (3) : 65–82.

(2) Fulmer, John L.
1950. Factors influencing state per capita income differentials. Reprinted from Southern Econ. Jour. 16 (3) : 259–278.

(3) Hagood, Margaret Jarman, and Siegel, Jacob S.
1951. Projections of the regional distribution of the population of the United States to 1975. U. S. Bur. Agr. Econ., Agr. Econ. Res. 3 (2) : 41–52.

(4) Klarman, Herbert E.
1943. A statistical study of income differences among communities. In Studies of Income and Wealth, National Bur. Econ. Res., Vol. 6. New York.

(5) Shepherd, Geoffrey S.
1949. Changes in demand for meat and dairy products since 1910. Iowa Agr. Expt. Sta. Res. Bull. 368. Ames.

(6) Shepherd, Geoffrey S., Purcell, J. C., and Manderscheild, L. V.
1954. Economic analysis of trends in beef cattle and hog prices. Iowa Agr. Expt. Stat. Res. Bull. 405. Ames.

(7) United States Agricultural Marketing Service.
1954. The livestock and meat situation. U. S. Agr. Mktg. Serv. LMS–70, 41 pp.

(8) United States Bureau of Agricultural Economics.
1947. The livestock and meat situation. U. S. Bur. Agr. Econ. LMS–7.

(9) United States Bureau of Human Nutrition and Home Economics.
1949. Meat selections of city families. U. S. Bur. Human Nutrition & Home Econ. Commodity Summary No. 1.

(10) United States Bureau of the Census.
1950. Census of manufactures: 1947. Vol. 3, Statistics by States.

(11) United States Bureau of the Census.
1953. Current population reports. U. S. Bur. Census. P–25, No. 78.

(12) United States Bureau of the Census.
1932. Fifteenth census of the United States, 1930. Population, vol. 3.

(13) United States Bureau of the Census.
1951. Seventeenth census of the United States. Preliminary PC–3, No. 10.

(14) United States Bureau of the Census.
1942. Sixteenth census of the United States, 1940. Population, vol. 1. 1,236 pp.

(15) United States Bureau of the Census.
1943. Sixteenth census of the United States, 1940. Population, vol. 3.

(16) United States Bureau of the Census.
1943. Sixteenth census of the United States, 1940. Population, vol. 4.
(17) United States Bureau of the Census and United States Bureau of Labor Statistics.
1939. Census of manufactures, 1937. Man-hour statistics for 105 selected industries. 145 pp.
(18) United States Department of Agriculture.
1953. Consumption of food in the United States, 1909–1952. U. S. Dept. Agr., Agr. Handb. 62, 249 pp.
(19) United States Department of Agriculture.
1950. Livestock market news statistics and related data, 1949. U. S. Dept. Agr. Statis. Bull. 91, 85 pp.
(20) United States Department of Agriculture.
1954. Livestock market news statistics and related data, 1953. U. S. Dept. Agr. Statis. Bull. 143, 68 pp.
(21) United States Department of Commerce.
1950. Survey of current business, August 1950. Office of Bus. Econ.
(22) United States Department of Commerce.
1953. Survey of current business, August 1953. Office of Bus. Econ.
(23) United States Office of Price Administration.
1944. Civilian meat distribution. Economic Data, Series No. 1.
(24) Vance, Rupert B.
1945. All these people. Univ. of N. C. Press, Chapel Hill. Illus.

BIBLIOGRAPHY

(These references are not included under Literature Cited.)

BOOKS

Fulmer, John L. Agricultural progress in the cotton belt since 1920. The University of North Carolina Press, Chapel Hill, N. C. 1950.

Herring, Harriet L. Southern industry and regional development. The University of North Carolina Press, Chapel Hill, N. C. 1940.

Hoover, Colvin B., and Ratchford, B. N. The impact of federal policies on the economy of the south. Macmillan Co., New York. 1951.

Parkins, A. E. The south, its economic-geographic development. John Wiley and Sons, Inc., New York; Chapman and Hall Limited, London. 1938.

Shepherd, Geoffrey S. Agricultural price analysis. 2d ed., revised. The Iowa State College Press, Ames, Iowa. 1947.

Vance, Rupert B. Human geography of the south. University of North Carolina Press, Chapel Hill, N. C. 1932.

PUBLIC DOCUMENTS

United States Bureau of Agricultural Economics. The livestock and meat situation. LMS–18. Washington. 1948.

United States Bureau of Agricultural Economics. Agricultural outlook 1952. Washington. 1951.

Hanson, Alice C., and Williams, Faith M. Money disbursements of employed wage earners and clerical workers in twelve cities of the south, 1934–36. U. S. Bur. Labor Statis. Bull. 640, Washington. 1941.

United States Department of Agriculture. Agricultural statistics, 1949. Washington. 1949.

United States Department of Agriculture. Yearbook of agriculture, 1938; soils and men. Washington. 1938.

United States Congress. House. Study of economic problems of the cotton belt. July 7 and 8, 1947. 80th Cong., 1st sess. 1947.

United States Bureau of the Census. Sixteenth census of the United States: 1940. Population, vol. 1. 1942.

United States Bureau of the Census. Seventeenth census of the United States: 1950. Current population reports, consumer income, Series P–60, No. 1. 1952.

Western Livestock Marketing Research Technical Committee. shifts in the trade in western slaughter livestock. U. S. Dept. of Agr., Agr. Inform. Bull. 14. 1950.
Works Progress Administration. family expenditures in selected cities, 1935–36, vol. 2, food. U. S. Dept. Labor, Bull. 648. 1940.

EXPERIMENT STATION PUBLICATIONS

McPherson, W. K. a general appraisal of the livestock industry in the south-eastern states. Ala. Agr. Expt. Sta. Bull. 257. 1942.

ARTICLES IN JOURNALS OF SOCIETIES

Bogue, Donald J. changes in population distribution since 1940. Amer. Jour. Sociology 56(1) : 43–57. 1950.
Davis, Joseph S. our amazing population upsurge. Jour. Farm Econ. No. 4, Part 2, p. 765. 1949.
Shryock, Henry S., Jr. redistribution of population. Jour. Amer. Statis. Assoc. 46 (256) : 417–437. 1951.
Daly, Rex F. some considerations in appraising the long-run prospects for agriculture, long-range economic projection. A report of the National Bureau of Economic Research, Studies in Income and Wealth, vol. 16. 1954.

PERIODICAL ARTICLES

Jacob, A. W. trends in livestock marketing in the south. Oklahoma Current Farm Econ. 20 (1). 1947.

NEWSPAPER ARTICLES

annual survey of southern industry. Jour. Commerce, Jan. 10, 1951.

UNPUBLISHED MATERIAL

Calvard, D. W. the future of the livestock industry in the southeastern states. Unpublished Ph. D. Dissertation. Lafayette, Ind., Purdue University Library. 1950.
Daly, Rex F. an appraisal of the long-run prospects for agriculture. Unpublished Research. U. S. Bur. Agr. Econ. 1954.
Honan, J. E. the probable influence of domestic demand, price trends, and diets upon the future of the livestock industry in the united states. Unpublished Ph. D. Dissertation. Lafayette, Ind., Purdue University Library. 1947.
Johnson, D. Gale. some effects of region, community size, color, and occupation on family and individual income. Unpublished Research. University of Chicago. 1951.
United States Bureau of the Census. seventeenth census of the united states: 1950. occupation. Unpublished. 1952.
United States Bureau of Human Nutrition and Home Economics. statistics on consumption of meat. U. S. Dept. Agr. Unpublished research. 1950.

APPENDIX A

TABLE 44.—*Per capita income, percentage of population that is urban, percentage of population over 15 years of age, percentage of population that is white, and percentage of employed persons in agriculture, forestry, and fisheries, by regions of the United States, 1950*

Region	Y	X_1	X_2	X_3	X_4
	Dollars	*Percent*	*Percent*	*Percent*	*Percent*
Northeast	1, 679	79. 2	75. 9	93. 7	3. 8
East North Central	1, 536	66. 9	73. 9	94. 1	10. 7
West North Central	1, 375	51. 9	73. 4	96. 4	25. 1
South Atlantic	1, 031	43. 7	69. 2	75. 0	19. 3
East South Central	886	41. 8	68. 1	70. 9	27. 0
West South Central	1, 231	60. 1	71. 2	81. 5	17. 5
Mountain	1, 361	54. 9	69. 4	95. 5	17. 9
Pacific	1, 709	74. 9	74. 9	95. 0	7. 9
United States	1, 436	64. 0	73. 1	89. 7	12. 8

Y=per capita income in dollars.
X_1=percentage of population that is urban.
X_2=percentage of population over 15 years of age.
X_3=percentage of population that is white.
X_4=percentage of employed persons in agriculture, forestry, and fisheries.

Source of data:
Y—U. S. Office of Business Economics. Survey of Current Business. U. S. Dept. Commerce. August 1951.
X_1—Bureau of the Census. Series PC–3, No. 10. U. S. Dept. Commerce. 1951.
X_2—Bureau of the Census. Preliminary Reports PC–6. U. S. Dept. Commerce. 1952.
X_3—Bureau of the Census. Preliminary Reports PC–12. U. S. Dept. Commerce. 1952.
X_4—Bureau of the Census. U. S. Dept. Commerce. (Unpublished data.) 1952.

The regional data in table 44 are divided through by the United States average, in order to show the comparison between each region and the national average, and presented in table 45. A regression equation is derived from these data and used later in the analysis to estimate per capita income in the South relative to the United States average.

TABLE 45.—*Per capita income, urban population, white population, population over 15 years of age, and employed persons engaged in agriculture, forestry, and fisheries by regions relative to the United States average, 1950*

Region	Y	X_1	X_2	X_3	X_4
	Percent	*Percent*	*Percent*	*Percent*	*Percent*
Northeast	116. 9	123. 7	103. 8	104. 4	29. 9
East North Central	107. 0	104. 5	101. 1	104. 9	83. 6
West North Central	95. 7	81. 1	100. 4	107. 5	196. 1
South Atlantic	71. 8	68. 3	94. 7	83. 6	150. 8
East South Central	61. 7	65. 3	93. 2	79. 0	210. 9
West South Central	85. 7	93. 9	97. 4	90. 8	136. 7
Mountain	94. 8	85. 8	94. 9	106. 5	139. 8
Pacific	119. 0	117. 0	102. 5	105. 9	61. 7
United States	100. 0	100. 0	100. 0	100. 0	100. 0

Y=per capita income.
X_1=proportion of population that is urban.
X_2=proportion of population over 15 years of age.
X_3=proportion of population that is white.
X_4=proportion of employed persons in primary industries.
$Y = -96.6 + .24X_1 + .95X_2 + .807X_3 - .07X_4$.

APPENDIX B

TABLE 46.—*Per capita income payments, Southern region by States, United States, and the United States excluding the Southern region, 1929–52*

State or area	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Alabama	305	232	191	155	154	197	213	253	256	233	242	270
Arkansas	305	211	177	153	152	180	204	246	249	236	246	253
Florida	484	431	363	287	272	325	360	423	445	418	442	470
Georgia	329	274	227	189	200	245	264	298	301	280	290	317
Louisiana	415	344	299	230	222	269	286	330	346	341	354	358
Mississippi	273	191	143	125	123	162	177	218	207	185	201	203
North Carolina	309	255	214	176	205	253	270	294	312	289	308	316
South Carolina	252	209	178	147	167	209	222	254	262	241	261	288
Tennessee	349	283	234	185	190	241	260	302	311	280	295	316
Virginia	422	367	326	276	266	316	347	393	405	380	402	445
West Virginia	464	393	336	261	265	326	342	402	417	369	378	397
Southern region [1]	355	290	244	198	201	247	268	310	319	296	311	330
United States	680	596	500	380	368	420	460	531	561	509	539	575
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
Southern region as percentage of United States	52. 2	48. 6	48. 8	52. 1	54. 6	58. 8	58. 3	58. 3	56. 9	58. 2	57. 7	57. 3

State or area	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Alabama	365	504	633	706	745	718	787	834	773	847	950	1,012
Arkansas	338	476	542	639	702	730	745	863	778	821	926	951
Florida	521	684	899	1,015	1,062	1,085	1,103	1,129	1,102	1,201	1,284	1,319
Georgia	387	510	673	762	805	794	873	919	876	967	1,103	1,137
Louisiana	432	565	741	802	837	790	864	961	1,002	1,049	1,135	1,206
Mississippi	278	392	479	572	596	589	676	753	634	703	771	818
North Carolina	392	513	619	709	759	796	857	887	854	949	1,052	1,049
South Carolina	358	478	589	671	699	735	768	844	787	844	1,003	1,099
Tennessee	410	521	674	808	876	827	869	906	873	967	1,064	1,126
Virginia	567	753	880	960	974	958	1,025	1,088	1,039	1,147	1,295	1,322
West Virginia	473	581	703	799	878	884	994	1,085	998	1,050	1,174	1,232
Southern region [1]	411	543	676	768	812	810	869	933	883	959	1,069	1,115
United States	693	876	1,059	1,161	1,192	1,212	1,294	1,387	1,330	1,440	1,584	1,639
Southern region as percentage of United States	*Percent* 59.3	*Percent* 62.0	*Percent* 63.8	*Percent* 66.2	*Percent* 68.1	*Percent* 66.8	*Percent* 67.1	*Percent* 67.2	*Percent* 66.4	*Percent* 66.6	*Percent* 67.5	*Percent* 68.0

[1] Computed by averaging the States.

U. S. Office of Business Economics. Survey of Current Business. U. S. Department of Commerce. August 1952, p. 17.
Note.—The Southern region's per capita share of the national income increased 27.2 percent 1929–49.

TABLE 47.—*Relative changes in per capita income payments by regions, selected years 1929–52*

Region	Percentage of national per capita income						Percentage change		
	1929	1939	1949	1950	1951	1952	1929–52	1950–52	1951–52
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
United States	100	100	100	100	100	100	+141	+14	+4
New England	123	126	107	108	106	105	+109	+12	+2
Middle Atlantic	136	131	117	117	116	116	+102	+11	+3
Southwest	68	72	88	85	83	80	+205	+16	+5
North Central	106	105	107	108	105	109	+146	+14	+3
Northwest	79	78	96	95	103	102	+190	+13	+3
Southeast	52	56	67	67	68	68	+226	+17	+4
Alabama	45	45	58	59	61	62	+232	+19	+6
Arkansas	45	46	60	57	58	58	+212	+16	+4
Florida	71	82	83	83	81	80	+173	+10	+3
Georgia	48	54	66	67	70	69	+246	+18	+3
Louisiana	61	66	76	73	72	74	+191	+15	+6
Mississippi	40	37	48	49	49	50	+200	+16	+6
North Carolina	45	57	64	66	65	64	+239	+11	+1
South Carolina	37	48	60	59	63	67	+336	+30	+11
Tennessee	51	55	66	67	68	69	+223	+16	+5
Virginia	62	75	79	80	80	81	+213	+15	+4
West Virginia	68	70	76	73	75	75	+166	+17	+5

U. S. Office of Business Economics. Survey of Current Business (*22*, p. 8).

TABLE 48.—*Median income of unbroken, native, white, nonrelief families, by region and size of community, 1935–36*

Region	Large cities	Middle-size cities	Small cities	Villages
MEDIAN INCOMES				
New England	$1,554	$1,481	$1,510	$1,447
North Central	1,751	1,430	1,376	1,154
Mountains and Plains	1,705	1,630	1,735	1,322
Pacific	1,654	1,455	1,670	1,405
South	1,819	1,740	1,345	1,474
RANK BY REGIONS				
New England	5	3	3	2
North Central	2	5	4	5
Mountains and Plains	3	2	1	4
Pacific	4	4	2	3
South	1	1	5	1

From A Statistical Study of Income Differences Among Communities (*4*).
Note.—Size of communities:
Large cities ..... 100,000–1,500,000.
Middle-size cities ..... 25,000–100,000.
Small-size cities ..... 2,500–25,000.
Villages ..... Rural nonfarm communities up to 2,500.

TABLE 49.—*Hypothetical mean family incomes for standardized occupational distribution, by region and community size, 1946*

Region	Large cities	Middle-size cities	Small cities	Villages
MEDIAN INCOMES				
New England	$1,955	$1,741	$1,917	$1,726
North Central	2,028	1,709	1,590	1,389
Mountains and Plains	1,938	1,942	1,612	1,448
Pacific	1,870	1,710	1,922	1,621
South	2,066	1,970	1,796	1,677
RANK BY REGIONS				
New England	3	3	2	1
North Central	2	5	5	5
Mountains and Plains	4	2	4	4
Pacific	5	4	1	3
South	1	1	3	2

From A Statistical Study of Income Differences Among Communities (*4*).

TABLE 50.—*Median incomes of white and nonwhite urban families, 1946*

Region	Median incomes	
	White	Nonwhite
	Dollars	*Dollars*
Northeastern States	3, 367	2, 235
North Central States	3, 244	2, 294
West	3, 206	(1)
South	3, 014	1, 549
United States	3, 246	1, 929

[1] Not given.

U. S. Bureau of the Census. Current Population Reports. Consumer Income. Series P–60, No. 1. Table 4.

TABLE 51.—*Estimated median incomes of urban white families by regions, 1949*

Region	Median incomes
	Dollars
Northeast	3, 500
North Central	3, 650
West	3, 550
South	3, 550

Johnson, D. Gale. (Unpublished paper.) Estimated from Bureau of Census. Employment and Income in the United States, by Regions. 1950. Series PC–7, No. 2, table 9.

TABLE 52.—*Median annual family incomes by major occupational group of head by regions for urban residents, by color for the South, 1939*

Major occupation of head	Region and color				
	Northeast	North central	West	South	
				White	Nonwhite
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Professional	2, 480	2, 235	2, 460	2, 215	850
Proprietors, etc	2, 770	2, 725	2, 510	2, 510	1, 090
Clerical sales	1, 985	1, 830	1, 770	1, 740	1, 045
Craftsman, farmer	1, 530	1, 735	1, 700	1, 535	750
Operatives	1, 435	1, 460	1, 505	1, 210	710
Domestic service	585	404	480	305	300
Protective service	2, 220	1, 880	1, 870	1, 605	1, 200
Other service workers	1, 215	1, 075	1, 050	890	670
Laborers, including farm	1, 280	1, 130	1, 030	750	780

U. S. Bureau of the Census. 16th Census. Population, Families, Family Wage or Salary Income in 1939. 1942. Table 7. Includes only families of which all workers are wage or salary workers.

TABLE 53.—*Rural and urban population of the Southern region by States, the United States, and the United States excluding the Southern region, census years 1900–1950*

State	1900			1910			1920		
	Rural	Urban	Percentage urban	Rural	Urban	Percentage urban	Rural	Urban	Percentage urban
	Thousands	*Thousands*	*Percent*	*Thousands*	*Thousands*	*Percent*	*Thousands*	*Thousands*	*Percent*
Alabama	1,612	217	11.9	1,768	370	17.3	1,839	509	21.7
Arkansas	1,200	112	8.5	1,372	203	12.9	1,462	290	16.6
Florida	422	107	20.3	534	219	29.1	615	354	36.5
Georgia	1,870	346	15.6	2,070	539	20.6	2,168	728	25.1
Louisiana	1,015	366	26.5	1,160	497	30.0	1,170	628	34.9
Mississippi	1,431	120	7.7	1,590	207	11.5	1,550	240	13.4
North Carolina	1,707	187	9.9	1,888	318	14.4	2,069	490	19.2
South Carolina	1,169	171	12.8	1,291	225	14.8	1,390	294	17.5
Tennessee	1,694	327	16.2	1,744	441	20.2	1,727	611	26.1
Virginia	1,514	340	18.3	1,585	477	23.1	1,635	674	29.2
West Virginia	833	125	13.1	993	228	18.7	1,095	396	25.2
Southern region	14,467	2,418	14.3	15,993	3,724	18.9	16,719	5,188	23.7
United States	45,835	30,160	39.7	49,973	41,999	45.7	51,553	54,553	51.2
United States (excluding the Southern region)	31,367	27,741	46.9	33,980	38,275	53.0	34,833	48,970	58.5

TABLE 53.—*Rural and urban population of the Southern region by States, the United States, and the United States excluding the Southern region, census years 1900–1950*—Continued

State	1930			1940			1950		
	Rural	Urban	Percentage urban	Rural	Urban	Percentage urban	Rural	Urban	Percentage urban
	Thousands	*Thousands*	*Percent*	*Thousands*	*Thousands*	*Percent*	*Thousands*	*Thousands*	*Percent*
Alabama	1, 902	744	28. 1	1, 977	856	30. 2	1, 727	[1] 1, 325	43. 3
Arkansas	1, 472	383	20. 6	1, 517	432	22. 2	1, 278	623	32. 8
Florida	708	760	51. 7	852	1, 046	55. 1	950	1, 794	65. 4
Georgia	2, 013	895	30. 8	2, 050	1, 074	34. 4	1, 877	1, 556	45. 3
Louisiana	1, 268	834	39. 7	1, 383	980	41. 5	1, 207	1, 460	54. 7
Mississippi	1, 671	339	16. 9	1, 751	433	19. 8	1, 569	604	27. 6
North Carolina	2, 360	810	25. 5	2, 597	974	27. 3	2, 686	1, 353	33. 5
South Carolina	1, 368	371	21. 3	1, 434	466	24. 5	1, 338	769	36. 5
Tennessee	1, 720	897	34. 3	1, 889	1, 027	35. 2	1, 883	1, 449	44. 1
Virginia	1, 636	786	32. 4	1, 733	945	35. 3	1, 754	1, 517	46. 4
West Virginia	1, 238	491	28. 4	1, 368	534	28. 1	1, 307	692	34. 6
Southern region	17, 356	7, 309	29. 6	18, 551	8, 767	32. 1	17, 756	13, 143	42. 5
United States	53, 820	68, 955	56. 2	57, 246	74, 424	56. 5	53, 964	95, 892	64. 0
United States (excluding the Southern region)	36, 464	61, 646	62. 8	38, 695	65, 656	62. 9	36, 208	82, 748	69. 6

[1] New urban definition (not comparable with previous data).

U. S. Bureau of the Census. 16th Census of the United States: 1940 (*14*) and preliminary reports on population, 1952.

TABLE 54.—*Persons employed by three major industry groups, Southern region by States and United States, 1940*

Region and State	Total employed	Agriculture, forestry, and fisheries	Manufacturing	Wholesale and retail trade
Alabama	893, 848	356, 581	155, 419	89, 895
Arkansas	583, 944	301, 535	57, 716	64, 280
Florida	683, 333	129, 293	80, 138	139, 166
Georgia	1, 107, 412	389, 083	205, 229	129, 679
Louisiana	771, 142	256, 128	99, 120	112, 620
Mississippi	727, 455	422, 247	66, 765	59, 652
North Carolina	1, 208, 690	409, 050	325, 539	126, 712
South Carolina	661, 073	261, 802	150, 923	61, 904
Tennessee	941, 714	313, 029	172, 416	125, 635
Virginia	933, 058	229, 563	186, 681	115, 596
West Virginia	519, 094	79, 598	91, 582	64, 391
Southern region	9, 030, 763	3, 147, 909	1, 591, 528	1, 089, 530
United States	45, 166, 083	8, 475, 432	10, 572, 842	7, 538, 768
Non-South	36, 135, 320	5, 327, 523	8, 981, 314	6, 449, 238

U. S. Bureau of the Census. Sixteenth Census of the United States (*15*).

TABLE 55.—*Percentage distribution of employed persons by three major industry groups, Southern region by States and United States, 1940*

Region and State	Total employed	Agriculture, forestry, and fisheries	Manufacturing	Wholesale and retail trade
	Percent	*Percent*	*Percent*	*Percent*
Alabama	100. 0	39. 9	17. 4	10. 1
Arkansas	100. 0	51. 6	9. 9	11. 0
Florida	100. 0	18. 9	11. 7	20. 4
Georgia	100. 0	35. 1	18. 5	11. 7
Louisiana	100. 0	33. 2	12. 8	14. 6
Mississippi	100. 0	58. 0	9. 2	8. 2
North Carolina	100. 0	33. 8	26. 9	10. 5
South Carolina	100. 0	39. 6	22. 8	9. 4
Tennessee	100. 0	33. 2	18. 3	13. 3
Virginia	100. 0	24. 6	20. 0	12. 4
West Virginia	100. 0	15. 3	17. 6	12. 4
Southern region	100. 0	34. 8	17. 6	12. 1
United States	100. 0	18. 8	23. 4	16. 7
Non-South	100. 0	14. 7	24. 8	17. 8

U. S. Bureau of the Census. Sixteenth Census of the United States (*15*).

TABLE 56.—*Persons employed by three major industry groups, Southern region by States and United States, 1950*

Region and State	Total employed	Agriculture, forestry, and fisheries	Manufacturing	Wholesale and retail trade
	Number	*Number*	*Number*	*Number*
Alabama	1, 031, 306	253, 477	224, 721	153, 153
Arkansas	615, 796	215, 270	85, 133	97, 546
Florida	1, 010, 426	134, 074	108, 325	240, 311
Georgia	1, 254, 935	277, 204	288, 198	201, 754
Louisiana	875, 608	160, 595	132, 476	169, 845
Mississippi	716, 851	305, 052	90, 338	95, 592
North Carolina	1, 463, 352	363, 998	408, 952	209, 439
South Carolina	755, 378	197, 055	210, 779	101, 965
Tennessee	1, 135, 646	248, 805	239, 427	193, 228
Virginia	1, 150, 169	174, 159	235, 424	188, 590
West Virginia	628, 157	61, 770	118, 511	97, 495
Southern region	10, 637, 624	2, 391, 459	2, 142, 284	1, 748, 918
United States	55, 843, 000	7, 138, 000	14, 110, 000	10, 392, 000
Non-South	45, 205, 376	4, 746, 541	11, 967, 716	8, 643, 082

U. S. Bureau of the Census. (Unpublished data.) 1952.

TABLE 57.—*Percentage distribution of persons employed by three major industry groups, Southern region by States and United States, 1950*

Region and State	Total employed	Agriculture, forestry and fisheries	Manufacturing	Wholesale and retail trade	Other
	Percent	*Percent*	*Percent*	*Percent*	*Percent*
Alabama	100. 0	24. 6	21. 8	14. 8	38. 8
Arkansas	100. 0	35. 0	13. 8	15. 8	35. 4
Florida	100. 0	13. 3	10. 7	23. 8	52. 2
Georgia	100. 0	22. 1	23. 0	16. 1	38. 8
Louisiana	100. 0	18. 3	15. 1	19. 4	47. 2
Mississippi	100. 0	42. 5	12. 6	13. 3	31. 6
North Carolina	100. 0	24. 9	27. 9	14. 3	32. 9
South Carolina	100. 0	26. 1	27. 9	13. 5	32. 5
Tennessee	100. 0	21. 9	21. 1	17. 0	40. 0
Virginia	100. 0	15. 1	20. 5	16. 4	48. 0
West Virginia	100. 0	9. 8	18. 9	15. 5	55. 8
Southern region	100. 0	22. 5	20. 1	16. 4	41. 0
United States	100. 0	12. 8	25. 3	18. 6	43. 3
Non-South	100. 0	10. 5	26. 5	19. 1	43. 9

U. S. Bureau of the Census. (Unpublished data.) 1952.

TABLE 58.—*Persons employed in manufacturing, Southern region by States, United States, and United States excluding the Southern region, 1899–1947*

Region and State	1899	1909	1919	1929	1939	1947
	Number	*Number*	*Number*	*Number*	*Number*	*Number*
Alabama	54, 970	78, 203	116, 440	130, 034	129, 261	206, 136
Arkansas	33, 074	48, 275	54, 234	48, 747	41, 183	65, 321
Florida	37, 252	62, 098	80, 086	71, 345	62, 616	78, 665
Georgia	87, 151	112, 895	135, 263	171, 734	176, 965	249, 926
Louisiana	44, 454	84, 268	109, 853	97, 551	87, 770	132, 464
Mississippi	28, 059	53, 787	61, 452	56, 268	52, 064	76, 671
North Carolina	75, 216	128, 002	167, 848	226, 425	293, 258	381, 480
South Carolina	48, 444	76, 303	83, 982	113, 876	136, 094	188, 601
Tennessee	49, 292	82, 257	107, 725	142, 020	152, 179	221, 454
Virginia	70, 051	114, 227	132, 842	131, 586	150, 202	216, 637
West Virginia	34, 824	68, 864	90, 651	93, 565	87, 741	127, 353
Southern region	562, 787	909, 179	1, 140, 376	1, 283, 151	1, 369, 333	1, 944, 708
United States	4, 688, 918	6, 850, 929	9, 836, 811	9, 661, 629	10, 414, 764	14, 228, 345
United States (excluding the Southern region)	4, 126, 131	5, 941, 750	8, 696, 435	8, 378, 478	9, 045, 431	12, 283, 637
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
South as percentage of United States	12. 0	13. 3	11. 6	13. 3	13. 2	13. 7

U. S. Bureau of the Census. Census of Manufactures. 1947 (*10*).

TABLE 59.—*Salaries and wages paid in manufacturing industries, Southern region by States, United States, and United States excluding the Southern region 1899–1947*

Region and State	1899	1909	1919	1929	1939	1947
	1,000 dollars	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Alabama	14, 912	27, 284	98, 482	102, 005	91, 106	372, 494
Arkansas	11, 447	22, 574	56, 207	49, 446	33, 352	124, 167
Florida	12, 216	27, 937	77, 932	68, 651	55, 355	168, 817
Georgia	23, 162	43, 867	125, 503	140, 674	142, 021	484, 246
Louisiana	17, 659	42, 394	116, 718	107, 960	85, 273	309, 871
Mississippi	9, 002	22, 422	58, 959	51, 427	36, 498	137, 705
North Carolina	16, 447	41, 259	148, 361	198, 810	245, 879	758, 895
South Carolina	10, 438	24, 117	72, 336	86, 023	103, 171	376, 964
Tennessee	17, 775	37, 438	105, 861	149, 080	149, 529	473, 211
Virginia	23, 903	47, 256	145, 423	147, 352	150, 359	483, 994
West Virginia	14, 159	38, 710	118, 898	136, 291	113, 660	337, 869
Southern region	171, 121	375, 258	1, 124, 580	1, 237, 719	1, 206, 203	4, 028, 143
United States	2, 258, 654	4, 105, 470	12, 426, 902	13, 123, 135	12, 706, 102	39, 689, 527
United States (excluding the Southern region)	2, 087, 533	3, 750, 212	11, 302, 322	11, 885, 416	11, 499, 899	35, 661, 384
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
South as a percentage of United States	7. 5	9. 1	9. 0	9. 4	9. 5	10. 1

U. S. Bureau of the Census. Census of Manufactures 1947 (*10*).

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Map of the United States showing the regional divisions for livestock marketing research.